

COMPUTERWORLD

PC software promo war escalates

BY ROSEMARY HAMILTON
CW STAFF

Another wave of pricing deals hit the desktop software market last week, including Microsoft Corp.'s added competitive upgrade offerings and a Borland International, Inc. promotional offer of software freebies with the purchase of a mainline product.

Beyond the immediate gain of cheaper deals for users, these offerings could spur changes in the pricing structure of the microcomputer software market, some observers said last week. Longer term, software companies could face users grown accustomed to low-cost software, forcing developers to bring basic pricing in line with those expectations.

"These competitive upgrades are an early warning of price pressure," said Raymond Strong, a senior systems analyst

One-upmanship

Among the top three software vendors, competitive pricing is fairly similar, although Borland takes the most aggressive.

Borland Quarterly Free

Patrons Users provide proof of competitor's spreadsheet software.

Lotus Leads IBM

Microsoft Based for DOS, Windows

Patrons Users provide proof of current license, and registration and to Microsoft. Admit to install upgrade on same system that current spreadsheet runs on.

Microsoft January 1991

Patrons Users provide proof of competitor's spreadsheet license.

Admit to sign pledge stating that they will not use any other spreadsheet on same system as current spreadsheet.

Microsoft 1991

CW Staff: Michael Segner

at Westinghouse Electric Corp.'s marine division in Sunnyvale, Calif. "It's my feeling that the whole pricing structure for software is under pressure."

Also last week, Lotus Development Corp. removed a restriction

on its competitive upgrade offering to 1-2-3 for Windows following complaints about its qualification policy, which should give the plan more widespread appeal (see story page 108).

Continued on page 108

IBM delays notebook arrival in U.S.

Machine's shortcomings could undermine firm's entry into hot market

BY MICHAEL FITZGERALD
CW STAFF

WHITE PLAINS, N.Y. — IBM will fall in its effort to bring a notebook computer to the U.S. market in 1991, the company confirmed last week. It is now targeting the first quarter of 1992, sources close to the company said.

IBM currently ships three notebook products in Japan and two in Europe. IBM had said it planned to base its first U.S. notebook on IBM Japan's Personal System/2 Model 55note, and it expected to ship a product in the fourth quarter.

Sources close to the project said IBM decided that its derivative of the 55note, which in basic form has neither a floppy nor a hard drive, would not compete effectively with notebook computers available in the U.S. market. IBM's Robert Carberry,

vice president of systems at IBM's Entry Systems Division in Somers, N.Y., said in an interview at Comdex/Spring '91 in May that IBM was concerned about this. Last week, however, IBM confirmed the product's delay but declined to comment on reasons for it.

The decision to postpone was



apparently made recently, as sources reported being shown the product behind closed doors at Comdex/Fall '91 last month. The delay means IBM is at best poorly positioned for a market expected to hit 1.4 million units in 1992, twice the unit sales in 1991.

Continued on page 109

Users seek vendor pact on metering utility

BY JIM NASH
CW STAFF

Network administrators are searching for ways to more closely monitor software running on multivendor personal computer networks and are asking vendors to agree on a com-

mon means to do so.

The Microcomputer Managers Association in Warren, N.J., recently published a white paper on network software licensing issues that included a call for a common metering application programming interface. In the aftermath of the paper's publishing, users and other industry observers are calling for closer integration between products offered by Novell, Inc. and Microsoft Corp.

This kind of collaboration has become increasingly important, according to developer Stan Levine, vice president of engineering at Automated Design Sys-

tems, Inc. in Atlanta. "With the Software Publishers Association suing companies for illegal copies and vice presidents being held personally liable," metering has become a priority, he explained.

Specifically, the association has called for software that can determine how many versions of an application are in use and "lock out . . . a program from running if a license is not available." That utility should be added by a program interface common to all network operating systems, the association said.

A Windows 4.0 development

INSIDE

Principled Financial's

Robert De-

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true to the

glass house. Page 67.

DEC's Kenneth Olson

previews Alpha VAX for share-

holders. Page 4.

In Depth — How do you

cost-justify new technologies?

Let us count the ways.

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Quotable

"You have to trust your staffs. I prefer the Borland approach. I'd like to have someone count on my integrity."

PATRICIA ELSTE
PACIFIC TRANSMISSION CO.

On completing spreadsheet makers' upgrade policies. See story page 1.

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EXECUTIVE BRIEFING

■ Have we got a deal for you — or a dud for us? The question could loom large for Lotus, Microsoft and Borland, as their race to lure desktop software users with discounted software threatens to drive the pricing structure of the microcomputer software market down to bargain level. Page 1.

■ Help desks are gaining popularity with companies trying to milk the most from technology investments. According to the Help Desk Institute, more than 75% of 1,200 member companies expect to expand their help desks by increasing staff or lengthening hours. Besides improved user productivity, a key motivator is the desire to free up valuable IS staff members. Expert-based systems and voice response are seen as important tools. Page 73.

■ Only banks that are in trouble outside the money market are in trouble inside. The \$65.2 billion NCBN Corp., the largest U.S. super-regional and a pillar of strength in the founding banking sector, signed its mainframe processing over to First Systems in a deal that could reach the \$200 million mark. Page 1.

■ The enormous trouble and expense of implementing a software upgrade can sometimes outweigh the actual benefits of the new, supposedly improved, version. Page 101.

■ IBM's first U.S. notebook entry is coming, but not as soon as expected. Analysts saw the shipped ship date — planned for late 1991, now targeted at first-quarter 1992 — as another sign that IBM has yet to get a grip on PC player status. Page 1.

■ Cost-justifying new technologies can be a thorny process. IS chiefs must rely on a mix of justification techniques — traditional and new — to capture the cost and benefits of technologies that often have no precedent in an organization. In the vanguard are firms such as IDS Financial Services, whose approach not only rationalizes its investment but is also expected to make it money. Page 83.

■ KISS, short for 'Keep it simple, stupid,' isn't a new concept. But it may have been the unspoken guideline for information systems officials asked to build a system to administer employee absentee policies at Wisconsin Electric. Page 67.

■ 'Look out and look out' could become the rallying cry

of the Microcomputer Managers Association. The price-weary trade organization's latest white paper calls for a metering interface that can monitor how many versions of an application are in use and bar unlicensed users from logging on. Sources say Microsoft and Novell are talking about a common watchdog. Page 1.

■ The network manager's job is getting to be more complex. Elements for network management are now going beyond the physical network to the inter-network, yet the current technology to extend that reach has its limitations. Page 57.

■ The time may have come for color desktop printers. Recent moves by suppliers mean important capabilities are becoming available at more reasonable prices. As a result, the next few years should show an increase in individuals using nonimpact color devices. Page 41.

■ Mergers and acquisitions can often be a boon to the IS professional who communicates aggressively, is open to change, shows patience with new philosophies and takes the time to learn about the new company. Page 93.

■ On site this week: The old mainframe is out, and the new Unix-based system is in, bringing with it specific access to documents in the Seattle Municipal Court system. Page 29. A new reservation system based on DB2 and built using a fourth-generation language, is expected to help Club Med keep its clients tanned and happy. Page 31.

The 5th Wave



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Users fear dilution of Compaq quality

BY CAROL HILDBRAND
and MICHAEL FITZGERALD
CW Staff

HOUSTON — Compaq Computer Corp. has spared no bridges in its restructuring march, leaving such company hallmarks as premium prices for top quality in smoking ruins.

Users expressed concern last week that Compaq may be reducing itself to just another clone. Dealer Jim Ciccarelli at Intelligent Electronics in Eaton, Pa., summed up concerns that any dip in Compaq's product quality could position IBM as the last bastion of quality.

The firm used a quarterly analyst meeting last week to detail a plan to drive the company into a personal computer division and a systems group and further explain loosening ties to its dealer channel (see story below). The point is to focus on meeting clone

makers' pricing and product cycles on its entry-level machines.

Divided reaction

Compaq's sudden shift in focus has users confused and analysts divided. "We're a little bit scared about what's moving into the clone market," said Glenn Sandusky, chief information officer at Miller Mason & Dickinson, a consulting firm in Chicago.

He said he invested in Compaq after being burned on quality by another manufacturer, choosing to pay extra for what he called minimizing his risk. However, "everything we're seeing is increasing the uncertainty, as opposed to calming it. I don't think they know what's going on," Sandusky said.

Compaq's new chief executive officer, Richard Pfeiffer, said Compaq's sensitivity to price will not come at the ex-

pense of high performance. No research and development funding will be cut, he said.

"We're not at all abandoning anything here, but we will not retreat into a [high-end] niche market."

Compaq reinforced its commitment to lower prices by announcing a 25% reduction on its 386-based notebook line. Pricing now ranges from \$3,299 (LTE Model 30) to \$4,199 (the new Model 84).

Pfeiffer was named CEO as part of a restructuring that featured a major management shakeout, including the ouster of co-founder Joseph R. "Rod" Canion and the early retirements of five senior executives earlier this month.

While customers certainly want lower pricing, "we want to have our cake and eat it, too," said Glen Jarmann, section manager of office technology at Bax-

ter Healthcare Corp. "But I certainly hope we don't see a loss in quality and innovation."

Observers said the restructuring plan is long on reassurances and short on specifics, leaving the impression of a company in turmoil.

Users, too, are concerned about whether the ordinarily nimble Compaq will be able to pull a clear direction out of its hat. "We're very concerned," Jarmann said. "I'm getting the feeling that decisions are being made every hour these days."

Analysts remained divided as to whether Compaq's decision to try to beat the clones at their own game is the right one.

"I don't believe Pfeiffer's strategy has a snowball's chance in hell," said John Logan, an analyst at Aberdeen Group, a Boston-based research firm. "It's not vision — just doing what everybody else is, but better."



Compaq's Pfeiffer says performance won't suffer for the sake of price

Pfeiffer alters channel; dealers 'victimized'

Compaq's efforts to stem eroding market share by opening up its dealer channel to value-added resellers (VARs) and distributors have drawn analyst approval and a feeling of betrayal from its traditional base of dealers. "We're being victimized for being loyal and sticking to them when they were too high on the price curve," one angry, prominent dealer said.

Last week, Compaq announced it had authorized two national distributors, Mel-

son, Inc. and Tech Data Corp., to sell its products to VARs. The firm has also authorized Computer City and Computer Service and TRW, Inc. as national third-party support services.

As recently as two months ago, Douglas Johns, Compaq's vice president of the PC division, said Compaq would continue to rely on the indirect channel. But Compaq President Richard Pfeiffer acknowledged in an interview last week that Compaq is looking to establish a multi-order channel.

Add to this the company's earlier entry into superstores such as Wal-Mart and Computer City, and Compaq has indeed strayed far from the dealer base that once commanded great loyalty.

Commented Jim Ciccarelli, president of the franchise division at Intelligent Electronics in Eaton, Pa., "Compaq obviously needed to make changes, but in terms of specifics as to how it's going to affect us, we haven't had that level of information."

CAROL HILDBRAND

DEC previews zippy alpha Alpha VAX

Demonstration designed to alleviate concerns about VAX's future

BOSTON — Kenneth H. Olsen, founder and chairman of Digital Equipment Corp., treated the crowd at last week's annual shareholder's meeting to a preview of DEC's next-generation Alpha VAX development workstation.

Using prototypes for the Alpha, a standard server-size box, Olsen demonstrated the speed of the upcoming reduced instruction set computing machine, which displayed an impressive 200-MHz internal chip clock. The Alpha family is slated for delivery in 1993.

"Ken wanted the shareholders to understand that there is a lot going on in the development world," a DEC spokesman said.

He said that the demon-

stration was to reassure customers and shareholders that the VAX line of computers would "survive through the end of the decade and beyond."

Olsen also fielded questions from the audience. When asked if DEC was looking at the possibility of cash dividends for shareholders, Olsen said DEC would continue to look at the possibility.

In answer to questions regarding future layoff numbers and attrition figures, Olsen declined to give specifics, saying that it was impossible to tell at this time.

DEC also announced that its Alpha systems will run the Open Software Foundation's OSF/1 Unix operating system as well as VMS.

SALLY CUSACK

Stephen Olsen

Chairman Olsen says DEC is considering cash dividends for shareholders

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CORRECTIONS

Due to a reporting error, the vice president of MIS at Service Merchandise Co. was incorrectly identified. Andy Pugliese is vice president of MIS. [CW Premier 10 Sept. 30.]

In a quote by Atrix/Intec, Inc. President Shauk Atrix in the Nov. 4 issue, Atrix was referring to the difference between the object-oriented programming origins of Borland International, Inc.'s Paradox and the linear programming method of its Dbase database, not incompatibility between Computer Associates International, Inc.'s dBase product and Dbase.

A networking story in the Sept. 2 issue implied that Statistics Canada was on the brink of replacing its 3270 terminals with X terminals. While that is a long-term goal, the firm is not "anywhere near a decision" to swap out the boxes.

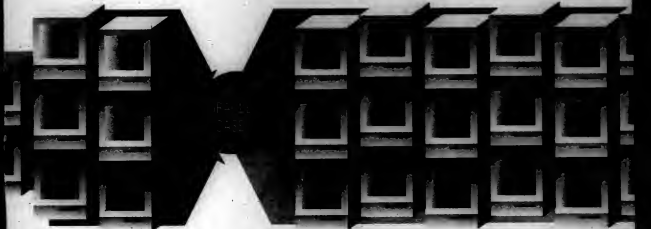
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Firm takes supercomputer commercial

BY MARYTAN JOHNSON
CW STAFF

ACTON, Mass. — Wavetracer, Inc., a relative newcomer to high-performance computing, is expected today to introduce a pair of low-end compute servers intended to make minimally parallel processing truly affordable for commercial user workstation sites.

Wavetracer's Zephyr Models 4 and 8 — priced at \$85,000 and \$150,000, respectively — are the newest additions to the firm's three Data Transport Computer (DTC) systems, which began shipping last year to scientists and engineers. The systems have a three-dimensional architecture crucial to solving large-scale problems in the physical sciences, image and signal processing and mathematics.

The new systems, roughly the size of desktop tower systems, work transparently with Unix-based workstations from IBM, Sun Microsystems, Inc., Sony Corp. and Silicon Graphics, Inc., appearing as an additional window on the computer screen. Apple Computer, Inc. Macintosh servers and Hewlett-Packard Co. Series 700 workstations will have their own interfaces to Wavetracer systems within the next few months, company officials said.

"These [Zephyr] machines have hit the price/performance mark, and Wavetracer is in a good position to sell a considerable amount of product," said Chuck Davis Jr., a senior systems engineer at the Lockheed And-Submarine Warfare Systems Center in McLean, Va. This week, Davis expects

A super server

Wavetracer's Zephyr minimally parallel compute server

Model 4		Model 8
4,096	Number of processors	8,192
128M bytes	Memory	256M bytes
350	MIPS	700
\$85,000	Base price	\$150,000
Mid-December	Available	Mid-December

CW Chart: Michael Sigman

to receive a Macintosh interface to beta test on his Wavetracer system, which is now being used with Sun workstations for ocean modeling and visualization work.

Contrary to their name, the

speed of these Zephyrs is no gentle breeze. The Model 8 whisks along at up to 700 million instructions per second (MIPS), while the Model 4 wings in at 350 MIPS.

"This is a tremendously fast

box," said Debra Goldfarb, an analyst at International Data Corp. in Framingham, Mass. "At that price point, they have very few competitors."

However, with roughly 15 sites installed so far, the vendor needs volume sales to break out of its lonely niche, the analyst added.

David Pensak, corporate adviser for computer technology at Du Pont Co. in Wilmington, Del., said the smaller systems should indeed find a brisk market at many workstation sites. But his work in molecular behavioral modeling could use a bigger system than his current top-of-the-line DTC Model 16, which has 16,384 processors.

"We could use a box with 32,000 or 64,000 processors. What we're doing is like trying to cook an elephant," Pensak said. The Wavetracer system was particularly appealing, he added, because of the ease of porting to its software.

IBM, Candle pursue centralized AS/400 systems management

BY JOHANNA AMBROSIO
CW STAFF

WHITE PLAINS, N.Y. — IBM and Candle Corp. struck a deal last week that will enable Application System/400 users to centrally manage their systems.

The development pact marks the first for IBM's Systemview architecture on a platform outside the mainframe. Systemview, introduced in September 1990, provides a common framework for managing systems by defining a standard user interface, data model and applications across IBM's strategic platforms and computers from other vendors.

The recent agreement calls for IBM and Los Angeles-based Candle Corp. to develop software tools for automating the performance monitoring of AS/400s. Neither party would say when the software would be available.

Soil, users and analysts gave the agreement favorable marks. Beneficial Data Processing Corp. in Peapack, N.J., the technology provider for financial-services provider Beneficial Management Corp., has some 400 AS/400s in field offices.

"We're doing performance monitoring from central sites using Netview" and homogenous tools, said Ted Boyer, president of Beneficial Data Processing at

IBM. "But once we get to a level of 1,000 AS/400s, integrated systems management is an essential ingredient."

The deal is "one more step forward in IBM's campaign to provide enterprise-wide systems management," said Frank Goss, an analyst at Technology Investment Strategies Corp. in Framingham, Mass. "Systems management products that work among heterogeneous platforms are few and far between."

IBM's Systemview will compete against products from other vendors that have staked a claim in the distributed systems-management arena, including Ligent Corp. and Computer Associates International Inc. When completed, the IBM/Candle products will be useful to customers that have large networks of AS/400s, use stand-alone AS/400s as their primary computers or have AS/400s tied into their mainframe, said Anthony Chernick, Candle's chief executive officer. The AS/400 software tools will integrate with Candle's Omnesight Corp. on MVS mainframes, he added.

To date, Systemview products for the MVS and VM operating systems have been developed from IBM and its Systemview development partners. The partners include Candle; Bachman Information Systems,

Inc.; Gail Systems International, Inc.; Information Retrieval Corp.; and Platinum Technology, Inc.

Common functions

The general idea is to provide as much common functionality between the mainframe and the AS/400 as is "feasible," said Jim Marcomb, IBM's manager of systems architecture and strategy for the AS/400. The products developed in the IBM/Candle partnership will be "complementary" to IBM's existing AS/400 Systemview tool set, the Systemview System Manager 400 product that was enhanced in April, he said.

Additional tools will most likely be added to the AS/400 Systemview ensemble, according to IBM.

Borland extends C++ lead

BY CHRISTOPHER LINDQUIST
CW STAFF

SCOTT'S VALLEY, Calif. — While Microsoft Corp. is reportedly just getting its own C++ product out to beta-test users, Borland International, Inc. said it will unveil a pair of C++ compilers next Tuesday that will include a Microsoft Windows-hosted development environment and the third generation of its professional-level DOS-based compiler.

The low price point of the compilers, particularly the Windows product, may also help move techniques such as object-oriented programming into the programming mainstream.

"The price/performance is outstanding," said Adrian Bowles, director of advanced software development research services at New Sciences Associates, Inc. in Southport, Conn. "Anybody can bootleg it into their budget."

Borland C++ 3.0 will come with both the DOS-based Programmer's Platform and a Windows-hosted integrated development environment that allows users to write and run applications without leaving Windows.

Easywin for Windows

Users who are looking to make existing C programs into Windows-based applications can use the Easywin library. Programs compiled with Easywin can access more memory and run in a window without using a DOS compatibility box.

Another product slated for introduction is the entry-level Turbo C++ for Windows. It includes a Windows-hosted development environment but lacks some of the code optimizations and professional features of Borland C++ 3.0.

Borland C++ 3.0 will have a list price of \$495. Turbo C++ for Windows will list for \$149.95.

IBM replaces Microsoft OS/2 developers kit

BY ROSEMARY HAMILTON
CW STAFF

FORT LAUDERDALE, Fla. — IBM last week responded to Microsoft Corp.'s plan to pull support for its OS/2 Version 2.0 Software Development Kit (SDK) by stating it would provide a free, substitute kit to OS/2 developers.

"We want to make sure that anyone who is developing for OS/2 will continue to do so," said John Soyring, director of software development programs at IBM's Personal Systems unit.

Microsoft's sluggish support

for the OS/2 SDK has been a bone of contention for developers who bought the kit during the last six months [CW, Aug. 5].

The IBM offering, which will reportedly run through March, is a collection of beta-test versions of recently announced tools as well as a beta-test version of OS/2 2.0. The company revealed its plan at the IBM OS/2 2.0 International Tools conference, held here last week.

Microsoft recently informed developers that it would stop technical support for the product once IBM begins commercial shipments of OS/2 2.0, now

scheduled for March. Microsoft plans to offer customers, who paid a hefty \$2,600 license fee, either a \$750 cash refund or a free copy of a Microsoft Windows SDK [CW, Oct. 28].

The IBM deal applies to current holders of a Microsoft SDK for OS/2 2.0 only.

Earlier this year, Microsoft said it had shipped about 1,000 copies.

The IBM kit represents about \$1,200 worth of software, according to Soyring.

He said IBM is now evaluating the option of introducing the kit as an official product.

Microsoft readies application updates

BY JAMES DALY
CW STAFF

REDMOND, Wash. — Microsoft Corp. officials will go on the offensive this Thursday, providing an advance peek at more than a half-dozen application updates they plan to introduce in the next six months, sources close to the company said.

Among the Microsoft packages expected to be discussed and/or demonstrated are updated versions of its Excel spreadsheet, Powerpoint presentation graphics package and the Project man-

agement application, according to sources.

Also on the agenda are discussions of a new personal information manager code-named Bandit, a multimedia version of Works, assorted languages projects — including Visual Basic and C++ — and even an upcoming database, which reportedly just went into beta-testing.

The briefing, which will take place at corporate headquarters, comes as Microsoft faces increasingly stiff pressure from competitors who have announced slick new applications for both the Windows 3.0 and Apple Computer, Inc. Macintosh

platforms in recent months.

"Several of [Microsoft's] applications are really getting dated and in need of a face-lift, and you can't let that happen in this market," said Robert Kleiber, a research analyst at Piper, Jeffrey & Hopwood in Minneapolis.

Quick from the gate

Microsoft came out of the gate very quickly with Windows 3.0 applications but has seen its lead wobble. Borland International, Inc. is a particular thorn in Microsoft's side and has been showing Windows versions of its Paradox database and

Quattro Pro spreadsheet, which it expects to release early next year. In addition, Borland will be introducing a new version of its C++ language on Nov. 19.

"Microsoft has to maintain the emotional high ground, and this briefing is one way of saying 'We've got a lot of things coming down the pike,'" said Jesse Bernstein, editor of the "Windows Watcher" newsletter, based in Redmond, Wash.

Older applications — particularly those that have not been updated for a year or longer — are seen as ripe for poaching.

One method many software vendors use is the "competitive upgrade" program, wherein users trade in a competing application in order to receive a huge discount on a new program.

IBM unshields Token Ring cable

BY JOANIE M. WEKLER
CW STAFF

WHITE PLAINS, N.Y. — IBM, surrendered to the world of unshielded twisted-pair wiring last week, nearly two years after other vendors shipped Token Ring products for the widespread and popular medium.

The company said it will team with 10base-T standard trailblazer Synoptics Communications, Inc. at this week's IEEE 802 committee meeting in Fort Lauderdale, Fla., to propose a jointly developed technology as a formal standard for 16/4M bit/sec. Token Ring networking over unshielded twisted-pair wiring. IBM also said it will ship backward-compatible products based on the technology "sometime in 1992."

10base-T is the standard for unshielded twisted-pair wire.

IBM, which still advocates a shielded twisted-pair wiring plant, has to date shipped no 16/4M bit/sec. unshielded twisted-pair products. Meanwhile, users have been running Token Ring networks over the medium since 1989 with products from such companies as Synoptics, Proteon, Inc. and Cabletron Systems, Inc. and are anxiously awaiting standards for 100M bit/sec. networking speeds over the medium.

IBM's endorsement of the technology as a proposed standard, competitors said, is good news for the industry, as no formal standard has yet been adopted for running Token Ring over unshielded twisted-pair wiring.

IBM and Synoptics said their technology precludes users from having to examine cables for cross talk characteristics and assures more reliable operation than other technologies. They also said it addresses the problem of signal distortion — also known as "jitter" — in large Token Ring networks.

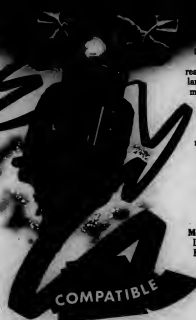
In addition, IBM announced that it has stepped up by 80% the performance of its 16/4M bit/sec. network adapter cards for Personal System/2 computers.

However, the company could give no quantifiable application example as to what the bottleneck throughput means, other than "if previously your 100-byte data frame got 6M bit/sec. of throughput, now it gets 11M bit/sec.," said Curt Dumber, IBM's manager of local-area network planning for Token Ring products.

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NEWS SHORTS

Bug delays AIX upgrade

IBM halted shipment of the most recent update of its Unix-based AIX operating system last week because of a corrupted module. The AIX 3.1 update, numbered 2007, has a damaged Systems Network Architecture (SNA) module that prompts a system crash when the RISC System/6000 is linked to IBM OS/2 or midrange systems on SNA networks. The roughly 100 customers worldwide who received the faulty update should call (800) 237-5511 to get a replacement.

Intel settles patent suits

Intel Corp., Microchip Technology, Inc. and General Instrument Corp. have settled their outstanding litigation. Intel had sued General Instrument and Microchip Technology for patent infringement on two erasable programmable read-only memory products. General Instrument and Microchip Technology counter-sued on grounds of patent infringement and antitrust violations. Few details were revealed, but Intel was granted a license under the General Instrument patents, while General Instrument and Microchip have received licenses for the Intel patents.

CA offers SQL access to IBM host

Computer Associates International, Inc. formalized its intent to support IBM's AD/Cycle and Information Warehouse initiatives at the Database World show in Chicago last week. CA announced CA-TMSQL, which provides SQL access to IBM IMS database users and is slated to enter beta testing later this month. SQL support for DB2 databases is also planned.

Tax deal aids tech start-ups

A bipartisan group of 38 U.S. senators and 37 members of the U.S. House of Representatives is pushing companion bills to reduce the capital gains tax rate on long-term investments in small-business ventures. Stockholders in firms with less than \$100 million in paid-in capital could deduct 50% of their investments from capital gains earned over five or more years. For firms with less than \$5 million in paid-in capital, the deduction increases to 100% for investments held 10 years or more. Supporters said the measure would restore some of the venture capital that dried up in the wake of 1986 tax-law changes.

Portable prices dropping

While Compaq Computer Corp. cut some prices by 25% (see page 4), Toshiba America Information Systems, Inc. trimmed portable prices up to 24% on its T2000, T2000SX and SXe and T2000SX notebooks and the T3000SX laptop. Prices fell 12% to 11% on the T2000SX line, which debuted in September.

VDTs blamed for optical distress

Eyetrain related to the use of VDTs accounts for complaints from 14% of optometrists' patients, or approximately 8 million people a year, according to a study scheduled to be released next week by Optical Casting Laboratory, Inc. Problems reported in the survey of 1,300 U.S. optometrists (conducted by the University of California at Berkeley's VDT Eye Clinic) included inability to focus or keep eyes aligned on the screen, as well as problems with users' eyeglasses.

Novell regrouping after merger

Novell, Inc. has reorganized in the wake of its merger with Digital Research, Inc. (DRD). The Provo, Utah-based networking company last week merged its own multiple divisions into three principal segments: Network Systems, Interoperability Systems and Digital Research Systems. Jim Bills was made executive vice president and general manager of Network Systems. Kamal Reihl will manage Interoperability Systems. Dick Williams, DRD's former president, is now both executive vice president of Novell sales and general manager of DRD.

More news shorts on page 107

DEC heads for rough router sea

BY JOANIE M. WEXLER
CW STAFF

Digital Equipment Corp. is in danger of missing the multiprotocol routing boat because of its lack of initial support for local-area networking protocols, users and analysts say.

Observers said the absence of support for key LAN protocols such as Novell, Inc.'s IPX and Apple Computer, Inc.'s AppleTalk in DEC routers when they ship in January could mean that DEC will miss a 12- to 18-month window of opportunity from users set to buy devices that support these protocols.

Users and analysts said DEC's router will appear primarily to its own customer base. However, Tom Nolle, president of consultancy CIMI Corp. in Voorhees, N.J., noted, "If you're going to exploit your embedded base, you don't wait until that base is semimatured."

He estimated that there is already at least one pair of routers in 60% of the DEC sites where internetworking is a consideration.

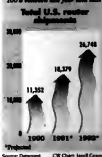
"The bottom line is that DEC's [offerings] are too little too late for too much" cost, said a senior consultant at a Midwest bank running DEC's Decnet protocols along with IPX, AppleTalk and Transmission Control Protocol (TCP/IP). "Is DEC going to have to put AppleTalk and IPX on their routers to make them sell?" he asked. "Yeah."

Initial DEC multiprotocol router offerings, slated for January 1992, will route Decnet, TCP/IP and Open Systems In-

terconnect protocols. IPX and AppleTalk will not be added to the firm's \$14,000 to \$40,000 stand-alone bridge/router, the X.25-capable Network Integration System 500/600, until the second half of the year.

IPX and AppleTalk support on DEC's \$3,250 to \$6,500 low-

Rip-roaring routers
Growth in the U.S. router market is expected to exceed 100% between last year and next



and VAX-based routing software is not expected until mid-1993. By then, many users may already be outfitted with multiprotocol routers.

For example, Doris Friskney, director of communications at the University of Kentucky in Lexington, asserted that "the only place DEC routers are going to sell is in a pure Decnet shop." Friskney added that IPX and AppleTalk are going to be the two big protocols in everyone's internetwork.

Another Decnet user, Greg

Hardison, supervisor of telecommunications technical services at McDermott, Inc., a New Orleans-based metals company running varied protocols, said he recently decided to install Cisco Systems, Inc. routers in the LAN internetwork he is building. "We don't anticipate doing anything different," he added.

DEC networks have long been fertile ground for router makers such as Cisco, Wellfleet Communications, Inc. and others. DEC currently holds the No. 2 overall router market share spot behind Cisco, though DEC only routes Decnet to date.

Analysts agree that there is rich market share still to be reaped in the multiprotocol routing arena, which by research firm Dataquest, Inc. predicted will grow from \$147 million in 1990 to \$286 million in 1992.

However, "DEC is doing nothing to alter cost benefits or offer unusual functionality," Nolle said.

DEC countered that in the interim before it routes IPX and AppleTalk, users can default to the devices' bridging capabilities. DEC wide-area network product manager Bill Mitchell also explained that DEC prefers to make sure its routers support the LAN protocols to their exact vendor-supplied specifications to ensure future compatibility. "We want our vendors negotiating for getting the specifications have slowed development."

Mitchell predicted that performance will be what DEC brings to the table, first to the DEC customer base, then "to accounts where there isn't even any Decnet."

HP offers service to migrate to open systems schemes

BY J. A. SANCHEZ
CW STAFF

PALO ALTO, Calif. — Hewlett-Packard Co. is expected to announce this week a consulting service to help users migrate to open systems architectures.

The service, which purports to provide a road map to open systems, includes a two-day workshop and customized implementation strategies.

While HP is not the only vendor to offer such a service, analysts and users said it will probably be the most open of the open systems services.

"Companies want to get into open systems, and they think that they can just sign onto the philosophy," said Judith Harwitz, editor of "Unix in the Office" from Patricia Seybold's Office Computing Group in Boston.

"But there [currently] is no real road map to open systems,"

Rich Morgan, executive director of the Communications Technology Center in Redmond, Wash., said he will be taking HP up on its offer to keep "HP from stumbling so much" in his move to open systems.

HP's Open Systems Environment service starts with a \$20,000 fixed-fee, two-day workshop that runs through the basic architectures and specific choices a company must make to move to open systems.

From there, Open Systems Environment consulting can assess a user's current environment and take its strong points into an open environment, according to Julie Dunlap, Open Software Environment marketing manager. Then HP provides custom open systems blueprints.

For instance, Owens-Corning Fiberglas Corp. in Toledo, Ohio, wanted to get from IBM mainframes and a mix of HP's proprietary and Unix systems to a client/server, object-oriented software development and distributed computing environment. HP produced a two-year plan, including a prototype to establish a client/server environment, a pilot to test client/server product development and a production model.

While some large vendors have similar consulting services, such as Digital Equipment Corp.'s Open Advantage, analysts and users said HP is most likely to make good on its assertion of vendor neutrality.

"They do a good job at being as objective as they can," Morgan said. He had HP do a local wide-area network study for his firm. "They ended up recommending an awful lot of products they had nothing to do with."

This is the fifth open systems support service introduced by HP in the last three years.

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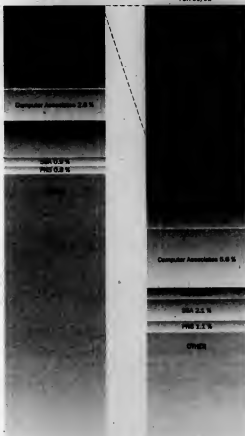
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UT taps IBM for outsourcing project

BY NELL MARGOLIS
OF STAFF

HARTFORD, Conn. — A rumored multi-billion-dollar outsourcing deal between beleaguered United Technologies Corp. and IBM's outsourcing subsidiary, Integrated Systems Solutions Corp. (ISSC), headed in on Done status last week with a letter of intent to hand over control of United Technologies' Newton, Conn., data center to ISSC.

Under the terms of the tentative agreement, ISSC will provide mainframe computing services to the three aerospace-

ties-related United Technologies businesses that share the Newtonington information systems side: Sikorsky Aircraft, Hamilton Standard and Nordens Systems. Exactly what those services will consist of is one of the contract issues currently under negotiation, said Martin Moore, a United Technologies spokesman.

Also on the table in the contract price, which some industry sources speculated could move into the \$3 billion neighborhood, putting it on par with the recently executed General Dynamics/Computer Sciences Corp. pact.

Moore declined to specify an anticipated

close date; however, he said, "We're optimistic that this won't be a lengthy negotiation." He also said the agreement could expand as well as gel in the coming days. "There is the possibility that other [United Technologies] units will end up outsourced to IBM."

Several analysts said they would apply any major outsourcing move by United Technologies as a probable route to at least some of the savings the firm seeks. Hard hit by defense cutbacks and the economic downturn, United Technologies watched its profits plummet 50% to \$119.5 million in its most recent report-

ed quarter. Chairman Robert Daniell has publicly stated that overall operating expenses must be slashed by some \$1 billion by the end of the coming year.

ISSC declined to comment on any aspect of the prospective deal before a contract is signed.

That deferential attitude may have loomed large in tying up the potentially lucrative United Technologies relationship for the 6-month-old IBM subsidiary, noted Howard Anderson, president of Boston-based market research firm The Yankee Group.

According to Anderson, ISSC "is working hard to position itself as nonconfrontational." He added, "The message is, we'll work with you, we won't do an end-run around your IS director."

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Amdahl big-iron deliveries slow

BY JEAN S. BOZMAN
OF STAFF

SUNNYVALE, Calif. — Amdahl Corp. announced last week that it will not begin volume shipments of its high-end IBM-compatible mainframe until the second quarter of 1992 — some three months after the first, limited deliveries trickle in.

Amdahl users who plan to install the company's 6390 disk drive will also have to wait until the second quarter of next year. The wait for the 6390 — already delayed from its original third-quarter ship date [CW, Aug. 12] — is being caused by microcode problems in Amdahl's proprietary 6100 controller, said Amdahl Chief Executive Officer John C. Lewis. However, industry analysts said Amdahl is staying close to its 1991 plan for its 5995M mainframe line. Limited deliveries of three-way and four-way 5995S processors are expected next month.

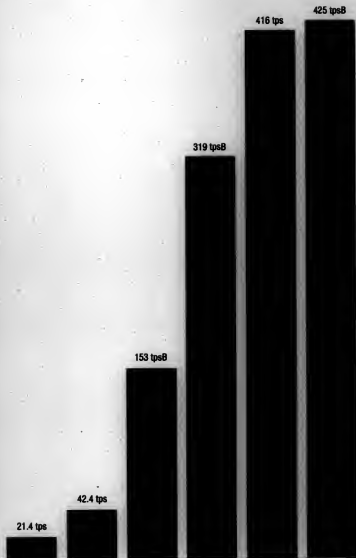
Amdahl executives indicated that fewer than a dozen new machines would be shipped by Dec. 31. Amdahl officials declined to give precise figures.

"In the first 60 days [of shipment], they'll determine whether they have any significant [technical] problems by testing those early machines," said John Jones, a senior analyst at Montgomery Securities in San Francisco. Jones said he believes Amdahl will ship 25 to 30 new mainframes by early March.

Amdahl's phased-in mainframe rollout, similar to previous product ramp-ups in the late 1980s, comes just as Amdahl's profitability has declined in recent months. The \$2.1 billion firm posted a slight profit of \$5.49 million in the third quarter, compared with \$46.4 million in the third quarter of 1990. And the upfront investment in the 5995M product line will not be recouped until the latter half of 1992, Amdahl said.

The new systems, which range from a 50 million instructions per second (MIPS) uniprocessor to an eight-processor model capable of 310 MIPS, will compete with IBM's Enterprise System/9000 machines, which are already shipping.

Amdahl competitor Hitachi Data Systems Corp. is already shipping its three-processor EX 310 and four-processor EX 420 machines. Hitachi has said it will begin volume shipments of its five-processor and six-processor EX series machines by mid-1992.



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Comdisco rationalizes outage

BY ELLIS BOCKER
CH STAFF

CARLSTADT, N.J. — Understandably chagrined executives at Comdisco Disaster Recovery Services, Inc. spent last week explaining why they declared a disaster of their own two weeks ago.

A Comdisco facility here lost commercial electrical power at 5:15 a.m. on Oct. 31 after water flooding a parking lot shorted a utility's electrical switchboard mounted outside one of the buildings.

Only one customer was affected by the outage, Comdisco said. Had other Comdisco customers declared disasters in

New Jersey during the incident, they would have been sent to other hot sites in another building or to hot sites in North Bergen, N.J., Comdisco said.

Although the center's two buildings had an uninterruptible power supply (UPS) that switched on as expected, the device only provides 30 minutes of battery power.

The facility houses one of Comdisco's six North American disaster recovery sites and a Comdisco affiliate that provides electronic vending services. Comdisco Executive Vice President

John A. Jackson said that the UPS at the Carlstadt center was designed to switch between the two power grids coming into the buildings. It was never intended to run the buildings on battery power.

"To have several hours of battery power would require a building dedicated to batteries able to provide 4,000 amps," Jackson said from Comdisco's headquarters in Rosemont, Ill.

Jackson also explained why the Carlstadt center did not have on-site diesel engines, which are installed at some other Comdisco locations. "Our research into power stability in the area indicated the dual [electrical feed] and UPS was a very, very

adequate precaution," he said. He noted the small probability of both electrical grids being knocked out at the same time.

Jackson refused earlier to publish a report that flooding had threatened the data centers in either building.

The Building B hot site was returned to commercial power five hours after the outage. But Building A — containing the Comdisco Computing Services Facility and a subscriber doing testing — was not on diesel power until 11:45 p.m. and did not go back on commercial power until the next morning.

Both the Comdisco subsidiary and the subscriber in Building A declared disasters at 10 a.m. on Oct. 31 and completed a successful recovery 24 hours later in the Building B hot site.

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SSA chided for lack of backup

BY GARY H. ANTHERS
CH STAFF

WASHINGTON, D.C. — The Social Security Administration (SSA) backs up only 20% of its computer data, leaving the agency vulnerable to outages that could result in hundreds of millions of dollars in payments to ineligible beneficiaries, according to government auditors.

The U.S. General Accounting Office (GAO) said in a report that the SSA failed to upgrade its backup and recovery system during its recent move to on-line processing, leaving only those files used in batch processing — one-third of the total work load — protected.

In a written response to the GAO report, the SSA acknowledged the shortcomings in its disaster recovery arrangements and said they would be corrected during the fiscal year beginning Oct. 1, 1992. That drew a rebuke from the GAO: The SSA "still does not seem to appreciate the urgency of action needed."

In addition, the GAO said the SSA's disaster recovery plan does not include backup for telecommunications linking SSA's field offices to its central data center in Baltimore. If the Baltimore facility were to shut down, updates to beneficiary files would have to be recorded manually in field offices.

A one-month delay in updating central files could result in \$391 million in overpayments, according to a private study cited by the GAO.

The SSA was one of the leaders in adopting computer technology in the 1960s, but backsliding and poor planning during the past 20 years have left the agency's technology systems in disarray. To address systems inadequacies, the agency spent some \$4 billion during the 1980s to modernize its systems.

Today, the SSA is at another crossroad. Soaring volume threatens to overwhelm "labor-intensive and paper-driven" computer systems. The GAO called on the SSA to go beyond automating existing processes and to re-engineer underlying business practices.

The GAO made some specific recommendations, suggesting, for example, that the social security card application process use scanners at SSA centers to capture data for transmission to the Baltimore data center.

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Utilities fire up client/server schemes

BY CLINTON WILDER
ON STAFF

LOS ANGELES — The utilities that supply the nation's power are not always noted for trailblazing in information technology. However, they are handling more and more computing power to their end users.

At the 39th annual American Gas Association/Edition Electric Institute Information Systems conference here last week, sessions devoted to cooperative processing and Unix- and client/server-based applications were at the forefront.

Companies ranging from giant Pacific

Gas & Electric Co. (PG&E) to Atlanta Gas Light Co. presented their experiences with providing end users with greater access to data, while several attendees predicted a surge in such applications throughout the industry.

"Our mainframe services are increasingly just that — services," said Rusty Sexton, a senior technical associate who heads personal computer-based development at PG&E in San Francisco.

The industry, however, remains skeptical about the promise of truly open systems. "Open systems are gaining momentum, but they are usually 'open' within

some constraints and boundaries defined by vendors' proprietary systems," said Hugh Naughton, director of IS at the Gas Research Institute in Chicago.

In 1989, Birmingham, Ala.-based Southern Company Services decided to replace its assembly language, MVS/XA-based energy management system with a Unix-based system. Using a Sybase, Inc. database, the Expanded Memory Specification/2000 application runs on IBM RISC System/6000 Model 550 workstations and Sun Microsystems, Inc. Sparcstations. "We went from a philosophy of centralized dispatch to one of making any

data available at any location in the system," said Johnny Mitchell, manager of the Unix-based energy management system at Southern Company Services.

Mitchell in particular praised the system's consistent user interfaces and cost-effective scalability of applications. "In the past, any major application upgrade on our mainframe earned our marketing trip a trip to the Bahamas," he joked.

By working with Electronic Data Systems Corp., Atlanta Gas customized Unix-based software from ACOS, Inc. for a system it calls FLAME, which stands for facilities, land, architecture, mapping and engineering. From screens showing detailed maps of Atlanta's neighborhoods, users can access a wide variety of data in different windows.

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Object-oriented gains visibility

BY ELLES BOOKER
ON STAFF

ROSEMONT, IL — Object orientation and distributed databases were the dual hot topics at last week's Database World conference here, with a procession of industry pundits expounding the benefits of both approaches.

Yet many users seemed hesitant to plunge headfirst into either technology. A number of database administrators complained that while distributed databases may be where they want to go, they are in a quandary over how to get there.

"We've been sitting back quietly, looking at what's available . . . and I don't care if we're six months behind the marketplace," said Anthony Zours, director of the information center with the Information Systems & Technology Group at the American Bar Association (ABA) in Chicago. Zours' IBM 3090 database database contains information on some 360,000 current ABA members and a total of approximately 1 million names.

"Our real major concern involves the consistency in a distributed database," he said, adding that the association hopes to have a prototype distributed database within a year.

Under consideration

Zours said the ABA is still evaluating database vendors offering SQL products, but has already decided to use Borland International, Inc.'s Paradox as a front end on the client workstations.

What will be the engine of that distributed database? Like several other speakers at last week's show, Michael Stonebraker, a professor of Computer Science at the University of California at Berkeley and the main architect of the Ask Computer Systems, Inc. Product Division's Ingres Relational Database Manager, came down firmly on the side of object orientation.

Getting there, however, is another question. A cold-turkey migration, whereby old applications are rewritten from scratch, can elicit two reactions from management, he said. "Either they say it's too scary," he said, "or they want to add everyone's wish list" of features.

An alternative "Chicken-Little" approach, involving incremental changes and migration, is feasible but more expensive, Stonebraker said.

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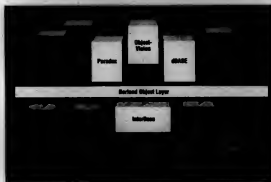
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U.S. goal: Paperless health care

BY MITCH BETTS
CW STAFF

WASHINGTON, D.C. — Secretary of Health and Human Services Louis W. Sullivan last week kicked off a long-term campaign to establish a paperless health

care system in the U.S., featuring computerized patient records and electronic filing of insurance claims.

Sullivan, following a summit meeting with the medical and insurance industries, said the industries agreed to use automa-

tion to slash the administrative costs of the nation's multicarrier health insurance system. The proposals could save more than \$8 billion a year when the plan is fully implemented, he said.

Sullivan did not set any deadlines or federal mandates, but he

did challenge the health care industry to increase the number of electronic filings by at least 10% per year.

Among the industry executives leading the voluntary campaign is technology advocate Joseph T. Brophy, who headed the information systems department at The Travelers Corp. before becoming president of Travelers' managed-care operation.

"Technology can reduce costs for everyone," Brophy said. It will improve the quality of data capture and the accuracy of payments and improve audit trails to reduce the potential for fraud, he added.

The system Sullivan and Brophy envision includes having Americans carry a "smart card" that stores identification and insurance-coverage data. They also want all insurance claims to be filed electronically from the medical office to the insurance company. Ultimately, Sullivan said, automation will make it unnecessary for patients to fill out insurance forms or repeat their medical history when they see different doctors.

Sheldon I. Dorenfest, a Chicago-based consultant specializing in health care IS, said the proposal for electronic filings is realistic, but the goal of automated medical records may take more than a decade to achieve.

Experts said the technology for automated medical records exists today, but conversion of paper records to computer databases will be an expensive job for cash-strapped hospitals.

Apple fights flat-panel tax

BY GARY H. ANTILES
CW STAFF

WASHINGTON, D.C. — Apple Computer, Inc. has asked the U.S. Court of International Trade to remove a 63% tariff on the import of flat-panel displays such as those used in its Macintosh Powerbook 170 notebook computers.

The dumping penalty was imposed in August when the U.S. International Trade Commission ruled that Japanese-made displays imported at less than fair price harm U.S. competitors.

IBM, Compaq Computer Corp. and Tandy Corp. also filed appeals with the trade court. A decision is expected in 12 to 18 months.

The active-matrix LCDs subject to the penalty are those increasingly used in second-generation laptop and notebook computers. The companies argued that they have no viable source of supply for the displays in the U.S., and they have threatened to move U.S. assembly of computers using the technology offshore to avoid the duty.

Apple has already made good on the threat, moving its assembly operations from California to Cork, Ireland. Apple uses displays from Japan's Hosiden Electronics Co. Apple asked the U.S. Department of Commerce to designate a Colorado plant as a "foreign trade subzone" into which the Hosiden displays could be imported duty-free.



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How much can you save? See Figures 1 and 2.

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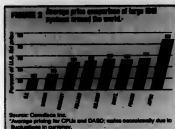
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4	Model 430 to Model 430 upgrade	600,000	700,000	700,000 ³
5	512-1024 000 memory	1,074,000	490,000	202,000
Total Upgrade Costs		\$2,055,000	\$1,759,000	\$1,286,400
Total Potential Savings		—	\$2,055,000	\$1,483,600

1 Prices used are based on market conditions as of March 1979 and are for comparable program only.
2 Based on IBM list price.
3 For purposes of comparison only; play-comisco alternatives do not provide model upgrades.

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Advocacy group pushes for shift in R&D funding

Project to redirect U.S. technology policy away from shrinking defense needs toward national concerns

BY MICHAEL ALEXANDER
CW STAFF

Now that the Cold War is over, U.S. defense budgets are expected to tumble during the next five to 10 years. That worries some scientists and technologists who predict that the nation's research and development budgets, so closely linked to military spending, will fall as well.

"The problem that we're facing as a nation is that because we have such a large share of R&D investment dedicated to the military, that if the defense budget falls and R&D falls proportionately, then the nation's total R&D picture is going to suffer," said Gary Chapman, coordinator of the Computer Professionals for Social Responsibility (CPSR).

The advocacy group, based in Palo Alto, Calif., is preparing to embark on a two-year plan called the 21st Century Project to investigate ways the nation's technology policy can be reoriented to address national needs in the post-Cold War era. The program will probably kick off after the first of next year, after fund-raising efforts have been completed, Chapman said. Last month, CPSR received a \$100,000 grant from the Rockefeller Foundation in New York.

"We have to come up with a new

rationale for supporting R&D that will keep levels of research and development funding at adequate levels and provide for solutions to national problems," Chapman said.

The 21st Century Project will be aimed at promoting discussion on how



Sam McDevitt

to redirect dollars that went to defense and tackling such issues as declining productivity, improving technical education and bolstering the strata of technicians between blue-collar workers and professionals who are essential for a high-tech industry.

The 21st Century Project will address three primary areas:

- Quality of work in the Information Age. The CPSR plans to look at both service and manufacturing sectors that employ people who work with computers on a daily basis. Among the issues that will be examined are computer interface design and ergonomics.

- In the case of service sector employment, we're talking about a design paradigm called participatory design that involves giving users a say in how systems are developed," Chapman said. Most users, for example, would not program into their own computers centralized monitoring functions, he noted.

- In the factory system, we're interested in investigating a concept called skilled-based automation, which is a paradigm that tries to promote the enhancement of skills by technology — producing higher value workers, instead of the rationalization of the automation process to either lower the value of workers or replace them altogether," Chapman said.

- Computer infrastructure and networking. The CPSR aims to develop a research agenda to involve more citizens in computer networking to improve access to the Internet and the National Research Education Network now under development. "We also plan to investigate ways of securing privacy and public access to

information and improving interfaces so that people don't have to deal with bare-bones Unix," Chapman added.

• Sustainable development. CPSR will examine ways of producing technology products without polluting

IF THE DEFENSE budget falls and R&D falls proportionately, then the nation's total R&D picture is going to suffer."

GARY CHAPMAN
CPSR

ing the environment. "We know, for example, that the semiconductor industry is one of the more toxic industries in the world," Chapman said. "We think that a fair amount of research and development could be put into discovering how we can produce semiconductors without the pollution problems we have now."

Several other organizations hope to tackle many of the same issues of concern to the 21st Century Project, including The Council on Competitiveness, headed by John Young, president of Hewlett-Packard Co.; The American Association for the Advancement of Science; The Carnegie Program on Science and Technology Policy; and The Center for Strategic and International Studies.

Exos lends added hand to science with sensor tech

BY MICHAEL ALEXANDER
CW STAFF

Exos, Inc., a tiny Burlington, Mass., firm, has a firm grip on some input devices that may prove handy to computer users and others.

The company has combined computer and sensor technologies to create "exoskeletons" that were designed to precisely measure the complex motions of the human hand.

The exoskeletons, which mount on the back of one's fingers and wrist, can be used in robotic, virtual reality, medical and several other applications. "Anything hand-controlled could be controlled by this device," said Beth Marcus, founder and president of Exos.

Attached to the exoskeleton are Hall Effect sensors, tiny semiconductors that detect changes in signal out-

put voltage in proportion to a magnetic field. As the hand moves, the sensors measure the angles in fingers and wrists. A computer, typically an IBM Personal Computer AT or compatible, translates the sensor data into position control commands. Those commands can then be sent to a robotic arm, for example.

The company markets three exoskeletons — ranging in price from \$9,000 to \$30,000 — to OEMs, research laboratories and government agencies. The three systems are packaged in a variety of configurations but typically include software and an add-in card. The company also markets complete systems that include PCs and other equipment.

NASA is experimenting with Exos' Dextrous Hand Master (DHM), an exoskeleton that monitors the position of all the joints of the fingers. NASA scientists are using the tech-

nology to study robotic tasks before investing time, effort and resources in software development, Marcus said. Someday, NASA's astronauts may use a DHM to control a robotic arm designed to retrieve satellites from the cargo bay of a space shuttle.

The DHM can also be used in virtual reality applications, perhaps as an alternative to "data or cyber gloves," which use sensing systems sewn into a glove. A visitor to a virtual reality environment could use the exoskeleton to fly or to pick up objects complete with tactile feedback, no less.

The difference between a glove and exoskeleton is that the DHM fits more precisely and is thus likely to be more accurate, according to Marcus. The drawbacks are that the exoskeleton is more cumbersome to don and weighs 15 ounces.

Ingersoll-Rand Co. markets an Ergo Quantifier, a hand force and wrist motion reading device based on the Exos Grip Master. This exoskeleton is being used to help identify po-



Exoskeletons can be used in robotic, medical and other applications

tential sources of hand and wrist injuries on factory floors.

Exos also markets a Clinical Handmaster System to the medical profession that is designed for such uses as clinical assessment of hand functions for surgery, rehabilitation and insurance evaluations.



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EDITORIAL

Private matters

At a dinner last week honoring the most effective users of information systems, the *Computerworld Premier 100*, keynote speaker Arthur Miller raised a few eyebrows and ruffled some feathers with his take on information technology and privacy.

The noted Harvard law professor and host of the Miller's Court television program said consumers are increasingly afraid, overwrought and overwhelmed by the electronic dossiers of their lives maintained by banks, airlines, department stores and just about every other commercial and government enterprise.

Miller suggested that personal information is collected, analyzed and often shared with little regard to rights of privacy. Further, the existing body of laws has not caught up with this runaway, contrapuntal express, he maintained. And, he said, IS professionals haven't done much to stop it, either.

His point is compelling from at least one angle: responsibility. Specifically, to what extent are the caretakers of computerized data responsible for its use?

For example, Miller suggested that the much-publicized credit reporting credibility problems of TRW and Equifax could be mitigated if the credit agencies would let consumers freely inspect their own files. Is that an IS management decision? Should it be?

Should IS speak out when retailers freely swap customer demographic information on consumers who thought they were just filling out guarantee forms? Or do we just leave that kind of decision-making to "corporate?"

There's an old saw that war is too important to be left to the generals, and maybe the message is applicable here. Recall that at the head of the line of those calling for an end to nuclear proliferation were various unions of scientists — nuclear scientists. Is it silly to consider the formation of a group named something like "The Union of Socially Conscious IS Professionals?"

When you consider the alternatives broached by Miller, such as a pile of federal laws designed to regulate the use of certain electronic data, maybe it isn't so silly at all.

Consider also that the courts are just now beginning to dig in to the issue of liability for data that is used inappropriately and to the detriment of an individual or group. The *modus operandi* in many organizations is to claim that data use is someone else's responsibility. That just won't do for long.

P.S.: To those of you who wrote and called to tell us we erred in last week's editorial by attributing to Paul Newman that great line, "What we've got here is a failure to communicate..." Yes, Newman did say that. In fact, it was the last line he spoke in Cool Hand Luke. However, the line was also uttered in the movie by the prison warden, as you keen cinemaphiles noted. So, what we've got here is a failure to communicate — effectively. — Ed.



LETTERS TO THE EDITOR

Taxing intangibles

I greatly appreciated your recent article "Tax change could slap buyers with extra software expense" (CW, Oct. 7). I was having a bad day and needed some light-hearted humor. Just how are the folks at the Copyright Office going to explain themselves? If software were truly intangible, then I would think software copyrights would not hold up in court.

I bet the lawyers at IBM, Microsoft, Apple, Lotus, Ashton-Tate... (the list goes on and on) spilled some coffee on their suits while reading this!

Charles Northrup
Senior Systems Analyst
Dun & Bradstreet IS
Basking Ridge, N.J.

Automation better when it works

Mr. Newquist's article "Computers don't humble or flee" (CW, Oct. 14) seriously overstates the value of automation.

He says that the AT&T power failure and the subway crash in Manhattan — both caused by human error — show how much better off we are when "almost everything is automated."

Mr. Newquist goes on to cite examples of successful automation that use expert systems to control the processes, suggesting that the use of expert systems should be extended into other areas, "particularly operations that involve life and death safety issues."

Automation is only better when it works. When automation fails, it cannot fall back on that old half-logic we call common

sense, and the resulting errors can be disastrous.

By all means, there are many more processes that should be automated, but each process should be carefully tested and done with an awareness of the risks as well as the benefits.

John Whitfield
Bradstreet Store Systems
Brentwood, Mass.

Hidden costs of a GUI

I have to take issue with the commentary by Jesse Berst, "The true cost of a GUI" (CW, Oct. 21).

He is blithe about the cost of upgrading the hardware on a few hundred PCs and buying special versions of your old software. Nobody is really writing anything for OS/2, so it is not a real choice. Many of the Windows versions are buggy, and UAE is a rather common deploy.

Mr. Berst said that you should allocate half a day for GUI training. Microsoft says that it takes eight hours (one work day) to learn a GUI interface. Corporate Software, Inc. reported in their study of 14 firms that it takes 20 to 30 hours of training time per user for a GUI interface. I am inclined toward the last figure because it is based on real data.

Support becomes a nightmare. At a downsizing conference in Chicago this year, I talked to the head of user support at a university. The same problems they used to handle by telephone now require them to drive across campus and inspect each individual screen layout. See how long it takes to physically describe a screen and the icon over the telephone. UAEs are

usually solved by rebooting the system, not by a real fix. More permanent solutions to UAEs are done by folklore and magic; somebody on a bulletin board suggests a systems parameter change, and it happens to work.

Jon Celto
Los Angeles, Calif.

Sad reflection

Your commentary "Don't say the D word," (CW, Oct. 21) proposed a scenario in which a manager decides on a strategy, proceeds to find the opposite point of view, characterizes a sham study effort to look into the issues and to make recommendations, and finally, allows himself, along with the rest of the staff, to be "persuaded" to the conclusion he had already committed to.

I would fire any manager whom I caught perpetrating such sleazy and manipulative tricks on his or her people. What a sad reflection of today's declining business ethics to see such a thing published without comment in *Computerworld*!

Why not a genuinely participative approach to making basic decisions affecting a professional staff?

Conrad Weisart
Information Disciplines, Inc.
Chicago

Computerworld welcomes comments from its readers. Letters may be edited for brevity and clarity and should be addressed to Bill Lehrs, Editor in Chief, Computerworld, P.O. Box 9171, 375 Cochituate Road, Framingham, Mass. 01701. Fax number: (508) 875-8931; MCI Mail: COMPUTERWORLD. Please include a phone number for verification.

Public deserves access to federal databases

RALPH NADER
AND JAMES F. LOVE



Nader



Love

When it comes to public access to government databases, the 1980s was an era of towering potential and diminutive accomplishment.

The potential was created by staggering advancements in computer and telecommunications technology. The principal roadblocks to exploiting these technological advancements were pressures to privatize access to government information resources. Now, after years of the federal government getting things wrong, Congress is undertaking a promising review of technology and public access to government information.

Hopes for progress

At the heart of this review is a proposal to create the Wide Information Network for Data On-line, referred to as the WINDO.

The sponsor of H. R. 2772, the WINDO, is U.S. Rep. Charlie Rose (D-N.C.). Rose is using a series of hearings with the Joint Committee on Printing, which he chairs, to investigate problems with public access to government databases and the capabilities of new technologies, including CD-ROM publishing.

The WINDO proposal would have the Government Printing Office (GPO) establish a one-stop window for federal databases. Through a single business account, citizens would be able to get dial-in access to hundreds of computer databases, which are maintained throughout the federal government.

While the details of the WINDO proposal are still being worked out, it is anticipated that the service will eventually provide on-line access to the *Federal Register* and the *Congressional Record*, as well as federal databases containing information such as economic statistics, scientific research abstracts, federal court cases, U.S. foreign patents, Securities and Exchange Commission (SEC) disclosure documents, White House and agency press releases and

congressional testimonies.

The proposal would also require the GPO to give the public a yearly opportunity to make suggestions regarding a wide range of information dissemination issues, including which databases are available, prices for access, the development of standards for record structures and user interfaces to make on-line services easier to use.

Desktop billing

"American taxpayers should not have to wade through an information maze, nor should they have to pay unreasonable prices to buy back government information created by tax dollars in the first place," Rose says.

While the WINDO proposal sounds like moon and apple pie, it is nonetheless generating substantial controversy. For the past decade, the federal government has moved in the opposite direction, imposing a number of privatization measures that have paralyzed federal agency efforts to provide public access to government computer databases.

Agencies have been deliberately barred from developing methods of publishing information electronically, except in for-

mat that are useful only to commercial vendors. In hundreds of cases, the taxpayers finance the creation of computer databases that are available only from commercial sources, often at very high prices.

Adding insult to injury, government agencies are often forced to buy back this government information from the vendors, so their staffs can use it.

For example, the Navy uses a commercial firm to obtain ocean tariffs because Congress has prevented the Federal Maritime Commission from providing access to its Automated Tariff Filing and Information system.

This is not an isolated case. Officials from the U.S. Departments of Energy, Defense and Health and Human Services must pay commercial vendors for on-line access to U.S. patent information, even though the government has already spent hundreds of millions of dollars developing an automated patent system to provide information to Patent Office employees.

The federal government is spending \$50 million to develop a database of SEC corporate disclosure filings, but access is restricted to 650 SEC employees

and to members of the public who can walk into one of three SEC reading rooms.

The public now has to contend with a bewildering array of public sources for data. If a citizen wanted on-line access to the Food and Drug Administration bulletin board, U.S. Department of State press briefings, the Federal Register, The U.S. Department of Commerce's Economic Bulletin Board and National Trade Data Bank, U.S. Patent Abstracts, federal campaign contributions and research abstracts from the National Library of Agriculture and the U.S. Department of Energy, he or she would have to have a separate account with each commercial vendor and government agency.

The WINDO proposal would offer the public a simple, low-cost way to access the databases on-line. It would not be an exclusive source for the information. Private commercial data vendors would be free to buy the underlying databases and sell them to the public, with or without value-added enhancements. The public, however, would no longer be forced to pay commercial firms as citizens for data they already paid for as taxpayers.

Nader is a consumer advocate. Love is the director of Modern's Treasury Assets Project in Princeton, N.J.

Trading on the information exchange

Managing these assets effectively requires the skills of a broker

RONALD DESORMEAUX



Management of information is certainly not foreign to most of us, but our role as information managers is

starting to change radically—moving in the direction of free-market brokerage.

It is no longer sufficient for technologists to transport massive amounts of information quickly to end users. These users can no longer cope with the amount or variety of information that's available. What they need is quality information that can be transformed into knowledge for critical decision-making. We must be the brokers who supply that.

A good broker must have an intimate understanding of market value of the commodities he handles. In this case, that will mean knowing the relative values of a report, situation summary, production graph or sales statistic. It will also mean knowing who needs the information most and why.

Obtaining that kind of knowledge will require us to penetrate the management team with per-

severance, marketing and negotiating skills. We must coax top managers to open up and share their ideas, experiences and information needs.

When we are able to grasp what is needed and why, we will be in a better position to organize our search for it, adjust our delivery mechanisms and enroll

cost. Furthermore, we will need to create an environment of "information marketing" whereby holders of information will compete to give us the best information for our clients.

Creation of this kind of an information market environment is a major organizational task and one that requires a good net-

work roles will give us a multitude of information sentinels ready to feed the firm's needs and transform the firm's culture.

Cultural implications

Such an arrangement will only work if it is flexible and provides employees with freedom of action. They must be free to select original information sources, adjust access routes, augment or diminish contribution levels in accordance with the environment. If, as must happen, employees are to be made responsible for challenging distorted, corrupted or vague data, they must also be rewarded for their contribution.

As information brokers, we will have to be sensitive to the need to link people, processes and products in the most flexible manner, expanding and changing networks to allow for peer communication and for connections between various hierarchical levels.

Once we have opened these new networks, we will be responsible for orchestrating the free exchange and flow among participants and, in the process, helping to create the setting for a new organizational culture.

Desormaux is director general of the Information and Administrative Policies and Services branch of Canada's Department of the Secretary of State.

Prodigy can't win as a censor

JACK RICKARD



The recent imbroglio between Prodigy and the Anti-Defamation League (ADL) of B'nai B'rith points up the danger censorship poses to on-line service operators.

Censorship and control of public conferences have long been troublesome topics. But, over time, a model has emerged that works pretty well. Many of the concepts are obvious to veteran participants but subtle enough to cause confusion among newcomers to the field. Prodigy has had difficulty catching on and has caught a lot of flak as a result.

Prodigy's major problem has been that, from the start, it seemed to establish its service as a "publication" under its sole editorial control. It has insisted that what it is running is a "private" service—just themselves and 1.1 million intimate friends—and, furthermore, a "family" service, one where skin to the Disney Channel.

Continued on page 26



Prodigy can't win as a censor

CONTINUED FROM PAGE 25

Most of this is wishful thinking.

What Prodigy has discovered the hard way is that if you open a message conference on-line, people will justifiably bristle if you try to control what they say. In Prodigy's case, protests have included technically ludicrous claims, dutifully reported in the general media, that the company was pilfering private data from users' hard drives and uploading it to the service and charges that virus infections were loose in its terminal software.

Laudably, Prodigy has smartened up and lightened up considerably over the past year, allowing a wider range of ex-

pression in public forums. But the conflict with the ADL reveals the limits of that progress and threatens to short-circuit further liberalization.

Crossed purposes

What set off the contretemps with the ADL was not, as generally reported, that Prodigy allowed a barbarous comment by an anti-Semite on the service. The root of the dispute was in the fact that Prodigy did not allow the message to be posted.

A pointed but civil discussion of Israel and the Holocaust did occur in the "Books Non-Fiction" forum on Prodigy. But what

boiled over onto the pages of *The Wall Street Journal*, *The New York Times* and scores of other publications was not the result of anything said in that forum. What caused all the trouble was Prodigy's well-intentioned but misguided censorship.

One of the participants in the original forum was moderately but obviously anti-Semitic in his comments and a Jewish participant sent him a message asking what his problem was. The response was a multiparagraph diatribe revealing some wildly anti-Jewish sentiments.

The message was seen only by the two people involved in the private electronic mail exchange. But the Jewish caller, interested in demonstrating the level of hatred that lay behind this person's more public postings, attempted to quote the E-

mail message and repost it to the open public message forum in "Books Non-Fiction." In fact, he attempted to post it 15 times. Each time, Prodigy refused to post the message, noting vaguely and variously that it was an attack on another subscriber and that it was "grossly repugnant to normal community standards."

Prodigy's refusal to allow the posting was the grievance that the Jewish participant took to the ADL. But seeing the private E-mail message, the ADL jumped to an erroneous conclusion and promptly called a press conference to castigate Prodigy for allowing such statements in a public forum. The entire issue was thus thrown upside down and backwards into confusion.

Less is better

Prodigy's current scramble to respond to the ADL's call for stronger censorship is no solution. Any subjective controls requiring human judgment inevitably result in callers feeling they are being selected for special censorship. Therefore, while some housekeeping controls are probably necessary, the best technique is to substitute controls — using automatic software filters to handle profanity and obscenity and leaving the policing of political matters to peer pressure.

Service providers often fear legal liability for not censoring messages, but, in fact, by assuming more control to avoid legal problems, they might actually bring more legal responsibility on themselves. This past week, U.S. District Judge Peter K. Leisure of the U.S. District Court for the Southern District of New York appeared to support that view with a ruling in a case involving the Compuserve Information Service.

The essential facts are these: A consultant named Don Fitzpatrick publishes an electronic gossip column about broadcast journalism that appears on Compuserve under the title "Bumerville." In one issue, he referred to a new competing publication titled "Scuttlebutt" as a "start-up scam," and the publishers filed suit against both Fitzpatrick and Compuserve. After learning that Compuserve asserted no editorial control over "Bumerville," at all, Judge Leisure dismissed Compuserve from the case, basically noting that simply providing the publication on-line brought them no more responsibility for the content than a convenience store has for the contents of the *Time* magazine copies it sells.

This ruling could prove pivotal to the entire issue of system operator liability and caller responsibility. Certainly it affirms a model adopted years ago by The World Electronic Link (WELL), a San Mateo, Calif., on-line service providing hundreds of forums on controversial topics. The WELL's ledger to continue its callers "You own your own words. This means that you are responsible for the words that you post on the WELL."

The ADL's call for more censorship by Prodigy is ill-informed and, if successful, will be damaging to our on-line society. I would encourage Prodigy to continue its evolution to a public forum offering free expression and exchange of ideas. If you take exception to something written there, take it up with the author, not the mailman.

Richard is editor and publisher of *Broadcasting Magazine*, a Littleton, Colo.-based publication covering on-line information services and electronic bulletin board systems.



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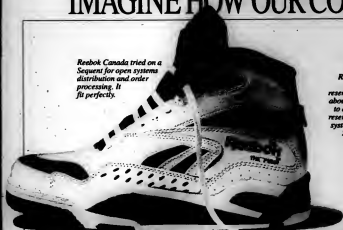
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CPW09/1111

SYSTEMS & SOFTWARE

NEW DEALS

Unisys in airline deal

American Airlines recently took delivery on two Unit-based superminicomputers from Unisys Corp. The Unisys U 6000/80 systems will run the airline's Easy Field Maintenance and Reliability Reporting software system. The customized software application was developed for American by Cambridge Technology Partnership, a Unisys strategic business associate. The contract's value to Unisys is reported at \$1.4 million.

Wetterau, Inc., a national wholesale food distributor based in Hazelwood, Mo., has developed a suite of electronic data interchange (EDI) applications to run on Stratus Computer, Inc. fault-tolerant computers. The EDI system serves more than 2,850 grocery stores and 150 U.S. military commissaries supplied by Wetterau. The distributor uses two Stratus KA2000 Model 75 Continuous Processing Systems in its order entry network. Either grocers can dial into the Stratus system directly, or the computer can dial out to the grocery store each night via an automatic polling option.

DEC updates license management tool

BY SALLY CUSACK
OF STAFF

MAYNARD, Mass. — In an effort to simplify product use, Digital Equipment Corp. recently enhanced its License Management Facility (LMF) software program for its VAX/VMS customer base.

LMF is a layered software application on which users can load information about the type of license procured, where it is authorized to run on the system configuration, and what products the license may include.

Virtually all DEC VAX sites use LMF, and users agreed that while the organizational concept of LMF is good, the product is cumbersome to maintain.

Manual labor

In the original version, any license changes at a user site had to be entered manually into the LMF proprietary database system off a printed worksheet. DEC customers said this is not only time-consuming, but it also widens the gap for error.

This is the first time the DEC LMF product has been enhanced since its introduction in 1984. The recently released VMS LMF Version 1.1 includes the following:

- Support for DEC's new licensing program.
- Extra commands to delete Product Authorization Key (PAK) license information from the LMF database via a straightforward, command-line interface.
- Ability to move licenses from database to database when the

VAX systems are networked.
• A copy and delete facility.
• The ability to copy a PAK from one LMF database to another.

VAX user Arthur W. Toga, associate professor of neurology at the University of California at Los Angeles School of Medicine, flatly stated that he does not like the current version of LMF.

"It is a cumbersome package for entering any type of license upgrade or change, and the procedures are not very friendly," Toga said.

Another user at a large government contractor site on the West Coast said there is no way to delete incorrect information once it is entered into the database without deleting the entire database file.

DEC has taken steps to correct this situation with the release of VMS LMF V1.1, which offers automatic loading of upgrade data on magnetic DEC TK50 tape.

In addition to license PAK availability on computer-readable media for VMS users, the LMF package has been restructured to support DEC's new Personal User License offering. This allows users to be licensed for an actual number of users rather than for the type of processor the software resides on.

According to the vendor, a tool will be released early next year to monitor Personal Use Licenses on the Ultrix operating system.

Peter Schay, vice president of midrange computing strategies at Gartner Group, Inc., a research and consulting firm in Stamford, Conn., said the new

release of LMF is "an enforcement mechanism" for the complex licensing topography of the client/server world.

"Users in the '90s are going to need much more flexible software licensing programs," Schay said.

"DEC is going in the direction that the entire software industry will have to go," observed Bob Cioininger, data processing manager at OK Industries, Inc. in

Fort Smith, Ark.

Still, some DEC users are taking a wait-and-see approach to the enhanced version.

"The magnetic loading sounds helpful, but it will depend on how fast they can get it up and how timely they can respond to changes," said Michael D. Miller, a systems manager responsible for several large VAX systems at Aetna Life and Casualty Co. in Hartford, Conn.

Seattle system frees courts from paper chase

ON SITE

BY JEAN S. BOZMAN
OF STAFF

SEATTLE — One year ago, judges at Seattle's Municipal Court shuffled through thick stacks of paper files while defendants waited with their lawyers, jurors sat in the hallway and court clerks dashed between buildings searching for the proper records.

Then, a single Unix-based system took on the task of consolidating data and streamlining the bogged-down process of court hearings.

Today, that

\$4.2 million system, called Municipal Court Information System (MCIS), is credited with reducing the need to search for lost paper files at the court, which handles 70,000 cases each year. During the day, MCIS logs on 100 users simultaneously, each of whom access the same Informix Software, Inc. Online 4.0 database of 6.5G bytes.

The relational database is believed to be one of the largest Informix Online databases in the country and has surprised some City Hall critics who thought the system would prove ineffective.

Thousands of
To page 36



Seattle's 6th directed the MCIS team

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Resorting to new reservation systems

ON SITE

BY ROSEMARY HAMILTON
CW STAFF

After 20 years of managing the booking of vacations for thousands of people around the world, the Club Med reservation system will soon be checking out for good.

A new reservation system, which is being written with a fourth-generation language (4GL), should be on-line in November 1992, said Jacques Benicini, who heads up the company's information systems department.

The goal was to bring the reservation system, originally written in assembler language and updated over the years, into the 1990s. While it effectively handled the reservation processing for approximately 250 company-owned or affiliated resorts, the new system will work with IBM's DB2, which has become the "strategic" database management system for Club Med, Benicini said. DB2 is being tested at the company and should be

ready for production work next year, Benicini added.

Although the software will be a complete rewrite, the reservation operation will not change much. Club Med operates a centralized reservation system from its Paris headquarters. Through a combination of leased and public lines, the system processes reservation requests transmitted from about 1,800 terminals worldwide.

It is also a key contributor to the Club Med client database, which the company relies on for various marketing campaigns and techniques. From the reservation system, the company establishes client files and builds on those files to tailor vacation offerings. The database currently holds information on about 5 million clients.

The client database is based on Software AG's North America, Inc.'s *Adabas*. The company will start moving it to DB2 next year, Benicini added.

Benicini said the database maintains what is called a White List. Resort managers are asked to report any mishap—from ac-

commodation mistakes to an illness—that occurs during a client's stay at their location. Should this client make a subsequent reservation, the system will flag the client as a member of the White List. For this vacation, management will provide a gift, such as a bouquet of flowers or a

the new reservation system because it used the language to write other applications and found "the programmers really like it," Benicini said.

"Plus, it's compatible with DB2," he added.

Benicini said he hopes to have the system ready for a June 1992



Club Med's new DB2-based reservation system, written with a 4GL, should be on-line in November 1992.

bottle of champagne, to the client to "make up for the last time," Benicini said.

The company is using Software AG's Natural 4GL to write

the pilot project, and if it is successful, the system will go live in November. The old one will be retired after running for six months as a backup.

Users splinter over open systems approach

BY JOHANNA AMBROSIO
CW STAFF

A lively debate has ensued among some user groups over how best to achieve their goals of prodding vendors into delivering open systems.

On one side are those who prefer an approach meant to yield results as soon as possible. The Group of 10 large users delivered in August a list of standards and protocols they would like vendors to implement and a deadline. The implication was that these 10 users would buy

only from vendors that adhered to these specifications.

On the other side are groups such as the User Alliance for Open Systems that participate in industry-wide surveys and work for wide consensus among both vendors and users.

Some proponents of the consensus-building method argue that the Group of 10 only serves to confuse the vendor community by presenting demands that may conflict with those from other user groups. "It was an attempt by purchasing entities to standardize by edict," said

Duane Elms, manager of technical computing at General Electric Co. "They have poorly served the user community by excluding the majority of users." Another issue is "how well [the Group of 10] groups getting together and agreeing on a common agenda "sounds good in theory," Peter said, "but in practice, that will never happen because they all have different focuses, and they can easily fall into the same morass as the standards groups—overconfidence. In user groups, one size does not fit all."

Speaking for themselves
One member of the Group of 10—a firm that purposely did not adopt a formal name or a charter—is William Peter, executive director for information systems management at Merck & Co. in Rahway, N.J.

"We did not intend to speak for all users, only for ourselves," he said. "Part of the excuse [for vendors not delivering open systems faster] has been that users don't know what they want."

There is some consensus occurring, however. Sally Atkins, a consultant at John Hancock Mutual Life Insurance Co. in Boston and a board member at the User Alliance for Open Systems, said, "Requirements will be shared. I believe we'll see a turnover" to X/Open Consortium Ltd.'s Xtra requirements-gathering process. The user forum for that will likely be the World User Council, a broad coalition of user groups from Europe, Japan and the U.S. that will meet in London this month, she said.

Regardless of the discussions about how to most effectively influence the vendor community, many observers agree that substantial progress has already been made. "This just confirms that the pendulum has swung back the other way, away from the vendor-dominated industry of the past," said William Bluestein, an analyst at Forrester Research, Inc.

Cray unwraps 'low-end' supersystem

BY ELLIS BOOKER
CW STAFF

EAGAN, Miss.—Cray Research, Inc., the Fortran computer makers, recently introduced the supersystem industry's equivalent of an economy model, an entry-level system targeted at cost-conscious companies.

The Cray Y-MP EL is an air-cooled, one-to-four-processor system architecturally compatible with Cray's flagship Y-MP line.

The \$300,000 to \$1 million EL puts supercomputing technology "within easy reach of hundreds of new customers," said Cray Research Chairman and Chief Executive Officer John A. Rulverson. Cray claims to have already received 18 orders for the EL, which will begin shipping this quarter.

The EL is capable of operating at 133 million floating-point operations per second. The 11-sq-ft computer comes with a 30-msec clock, 256M to 1,024M bytes of memory, and, like the larger Y-MP line, uses Unicos, Cray's Unix operating system implementation. It supports up to four integrated 160 subelements per CPU, with data transfer via a variety of standard network protocols.

A high-performance parallel interface will be available by mid-1992, Cray said. The EL is the successor to the Cray KMS, a system based on technology acquired in Cray's June 1990 purchase of Santa Clara, Calif.-based Supertek Computers, Inc.

Value-added relationships. As part of its move into the low-end market, Cray also announced its first relationships with value-added resellers. The three companies—Cogneis Development, Inc. and Timeslice Technology, Inc., both in Houston, and France-based Biostructure—will be able to sell the EL and add their own software products to the platform.

Gary Smaby, president of the Smaby Group, Inc. in Minneapolis, said Cray is arguably in the best position to realize the potential of a "mini-Cray."

"The mini-processor marketplace, defined as customers who wanted but couldn't afford a Cray, was something of a phantom," Smaby said. He noted that one company often described as a Cray competitor, Convex Computer Corp. in Richardson, Texas, has historically been against Digital Equipment Corp., not Cray.

Mips trumpets RISC-based machine

BY CAROL HILDEBRAND
CW STAFF

NEW YORK—The recent Unix Expo was the site for the curtain-raising ceremonies on a new reduced instruction set computing (RISC)-based box from Mips Computer Systems, Inc., as well as an enhanced version of RISC/OS 5.0, the company's multiprocessor Unix implementation.

The RC6380-100/400 RISC computer uses fully symmetric multiprocessing (SMP) and

RISC microprocessors to set what the company claimed is a new performance standard for data center class machines. The server uses the R6000A microprocessor.

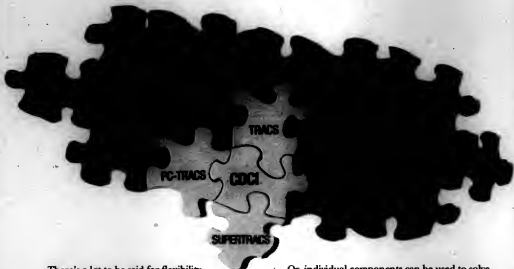
According to Joe Alwan, the company's multiprocessor product line manager, the RC6380-100 earns a 20.5-Specmark throughput performance rating when fully configured. The server supports multiple Ethernet, Fiber Distributed Data Interface, X.25 and Sys-

tems Network Architecture networks.

Pricing starts at \$196,000 for a base system that includes one CPU, 128M bytes of expandable main memory, a small computer systems interface, a VMEbus slot and an unlimited user license for RISC/OS.

RISC/OS 5.0, which is slated for availability by year's end, will support such standards as Unix System V Release 4, XPG3, Postscript and the Federal Information Processing Standard.

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HP Unix systems play game of catch-up

BY J.A. SHINZE
CI/IT/ST

Competitive pricing, software considerations and the trend toward open systems have recently driven Hewlett-Packard Co.'s HP 9000 family of Unix systems into a position where they are challenging the long-successful HP 3000 series for a leadership role.

Asked about the HP 9000's success, users cite competitive pricing, availability of vertical software and their belief that there is more of a future in Unix than in proprietary systems.

"The ratio is getting closer. Unix is gaining in the low end," said Rich Sevcik, general manager of HP's Commercial Systems Division. He predicted that in the next few years, the unit sales of the HP 3000, with its proprietary operating system, will likely equal the HP 9000.

Sevcik said that in some vertical markets, such as retail and hotels, Unix is gaining ground, but where proprietary systems are focused — mainly as a replacement for mainframes — "Unix is considered a four-letter word."

Unix wins out

According to a recent report from Computer Intelligence (CI), a La Jolla, Calif., research firm, HP's 9000 Series Unix-based systems are the only Unix systems that made the company's Top 10-selling systems in total value. Ralph Bunch, the report's author, estimated that 11,900 reduced instruction set computing (RISC) Unix systems have been shipped vs. 4,670 proprietary RISC systems.

HP does, however, dispute the firm's numbers. Sevcik said the sales of proprietary computers, the HP 3000 line, are three times what CI reported, but sales of Unix-based HP 9000 systems are indeed brisk.

Where Unix is growing is in vertical markets, said Sevcik, who estimated that 70% of HP's Unix sales are driven by the choice of particular applications.

Sheraton Corp. is in a vertical market — hospitality — that is embracing Unix. During the next few years, Sheraton said, it is scheduled to spend \$14 million to install low-end multitasking HP 9000s in each hotel as front ends to the company's reservation system.

Some companies are turning to Unix-based systems because they offer a better option for future growth. Ray Zimmermann, director of the life information network at Northwestern Mutual Life Insurance Co., bought 105 of HP's Unix systems for its remote offices and two more for the main office. "We did not want to get into proprietary sys-

tems. They're not the wave of the future," Zimmermann said.

While HP claimed that most of its multitasker Unix sales are at companies that offload specific mainframe applications to cheaper computers, some of HP's loyal proprietary users are thinking of jumping to Unix.

Rich Morgan, executive director at the Communications Technology Center for Washington state's community colleges in Redmond, Wash., said that despite his attachment to HP's proprietary systems, he plans to migrate to the company's Unix computers by the mid-1990s.

Emergency inventory

The HP 3000 has slipped into the IBM-dominated industry after

Year	1988	1989	1990	1991	1992	1993	1994	1995
Rank	1	2	3	4	5	6	7	8
1	1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5

Source: Computer Intelligence

CI/IT/ST Richard Sevcik

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Seattle courts free from paper chase

CONTINUED FROM PAGE 29

court histories are held within the system's 28 disk drives and processed by its Sequest Computer Systems, Inc. Symmetry 2000 six-processor computer. The Sequest machine replaced four older systems: an IBM 3084 mainframe handling case management; a Wang Laboratories, Inc. VS minicomputer tracking revenue from traffic fines; a group of IBM-compatible PCs recording payments of fines; and a system at an outside service bureau for tracking parking tickets.

When installed last November, the system ran on a Sequest S81 processor but was upgraded this year to a Symmetry

system with 296M bytes of main memory. By 1993, processing requirements may force yet another upgrade — this time to a 10-CPU version of the Symmetry 2000 with 680M bytes of memory.

Bill Glad, project director for MCIS, said, "The reason it's so big is that we need the engine to make the relational database perform to our specifications."

The speed of the computer, based on multiple Intel Corp. 80386 and 1486 CPUs, allows response times of one to three seconds for most queries. Queries involving communications links to outside computer systems can take 15 seconds or

more, however, users reported.

Court entries that used to be handwritten are now entered directly into the computer.

Although it meets users' requirements, the MCIS project has had its share of problems as well. "There have been some real frustrations with it," said Ron Kessler, a daily user and one of the court's 10 judges. "We only had a two-week cut over from the four older computer systems because that's all the city budget would allow."

There are still some judges who would prefer to have their court clerks type onto the system's keyboard. But Kessler, who uses an Apple Computer, Inc. Macintosh at home, said he wishes he could reach the keyboard on the MCIS terminal at the

court clerk's desk. "It saves us a lot of time and allows us to balance our calendar," Kessler added.

The computer is also linked to several state agencies, allowing judges to view data connected with traffic or criminal cases. "If I have a defendant before me for sentencing, I have electronic access to his felony record," Kessler said. "Previously, if I didn't have those records in front of me, I would have had to continue the case."

The system is intended to actively track cases from beginning to end. "We are keeping all the official court records in the database, along with traffic-ticket payments and fines imposed on defendants," said Brian Backus, director of information systems at the municipal court. When a case is closed out, usually after a year, the records are compressed for archiving in paper files, he said.

While MCIS appears to have proven that Unix systems can have practical, large-scale commercial applications, the jury is still out on Unix on-line transaction processing systems. Glad, who directed the IS team that put MCIS together, said the project was not specifically targeted at a Unix machine. But Seattle's open bid to vendors in 1989 included many functional specifications that were met by the Sequest machine, which runs a variant of Unix called Dynix.

Unisys Corp. won the bid as the general contractor and then subcontracted out the work, creating a project team of 40 developers and bringing in the Sequest equipment. Work began on the MCIS design in June 1989, and the project was completed by the fall of 1990.

Normalizing the database for optimal performance was the biggest challenge facing developers. "The whole application can be characterized by complex queries," said Kurt Wagner, president of Anix, Inc., a Seattle firm that did systems integration work for MCIS. "The average case pulls in data from 20 different tables" in the RDBMS.

City programmers worked with Informix's SQL optimizer utility to streamline queries so they would not slow — or halt — the computer. Another Informix utility, called SQL Explain, projected the impact of SQL queries on computer resources, including memory and I/O, Wagner said.

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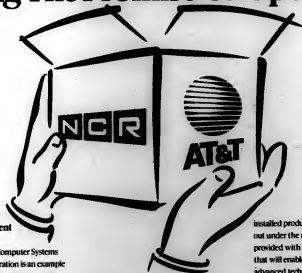
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Seattle Municipal Court's multiprocessor database system

- Sequest Symmetry 2000 with six processors: four Intel 1486s and two Intel 80386s. A single system handles all case management and court-payment information and also provides electronic access to several law-enforcement databases in Washington state computers.
- Main Memory: 296M bytes.
- Disk storage: 28 drives totaling 15G bytes of capacity.
- 100 active users on 150 attached terminals; 50 attached printers.
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- Response time: three to 15 seconds, depending on query type.

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Data storage

Hiperstor, a subsidiary of Clearpoint Research Corp., has announced the DGMS-SC storage product line for Data General Corp. MVS systems.

The DGMS-SC line includes single- and dual-channel small computer systems interface (SCSI-2) disk and tape interface controllers. The products use one slot in the DG systems and provide capacity for up to 14 drives.

Pricing ranges from \$11,000 for an entry-level subsystem to \$48,200 for a 4G-byte dual-channel system.

Hiperstor

Clearpoint Research
35 Parkwood Drive
Hopkinton, Mass. 01748
(800) 435-2000

Processors

Modular Computer Systems, Inc. (Modcomp) has announced the Development Server 1 application development system. The Development Server includes a reduced instruction set computing-based central processor, 16M bytes of main memory and a 300M-byte hard drive.

The product also has a 19-in. X terminal, an intelligent Ethernet interface supporting Transmission Control Protocol/

Internet Protocol, the company's Real/ix real-time operating system and a C language compiler.

Pricing for the system, which is available now, starts at \$39,000.

Modcomp
1650 W. McNab Road
Fort Lauderdale, Fla. 33309
(305) 974-1580

SOFTWARE

Development tools

Computer Associates International, Inc. has announced pricing for its CA-ideal/400 software.

CA-ideal is a personal computer-based

system for developing IBM Application System/400 programs. Pricing ranges from \$24,000 to \$40,000.

Computer Associates
7111 Stewart Ave.
Garden City, N.Y. 11530
(516) 227-3300

Database management systems

Itasca Systems, Inc. has updated the Itasca Distributed ODBMS, its object database management system.

The Itasca Distributed ODBMS is an active object database that allows users to store method code in the same manner as they store data. It offers such features as distributed query management, version control, object migration and dynamics schema modification. Release 2.0 adds a Database Administration Tool that helps manage the database via Open Source Foundation Motif-compliant screens.

Pricing starts at \$3,995 for a single workstation license.

Itasca Systems
7850 Metro Pkwy.
Minneapolis, Minn. 55425
(612) 851-3155

SQL Solutions, Inc. has optimized DBA Companion for distributed processing, the company announced.

DBA Companion is a suite of three software tools for managing Oracle Corp.'s Oracle relational database management system. Its new architecture allows the database administrator to actively manage the Oracle application across a network from a central server.

Pricing is based on a per-user model and ranges from \$1,200 to \$50,000 for each of the three tools.

SQL Solutions
8 New England Executive Park
Burlington, Mass. 01809
(617) 270-4150

Unix

Elan Computer Group, Inc. has announced Version 2.0 of its Avision Publisher product for Unix.

Word processing and desktop publishing capabilities are incorporated into the product. Features added into the new release include color support, mail merge, enhanced graphics and new import filters.

The software is available on Unix systems from IBM, Hewlett-Packard Co., Sun Microsystems, Inc. and Digital Equipment Corp. Pricing is \$995 per license in the U.S. and Canada.

Elan Computer Group
3rd Floor, 888 Villa St.
Mountain View, Calif. 94041
(415) 964-2200

Languages

Digital Equipment Corp. has introduced the DEC Ada Compilation System for Unix.

The system is based on the company's VAX Ada compiler and incorporates new code-generation facilities. It allows users to include DEC C language and DEC Fortran code in Ada applications.

Pricing ranges from \$8,150 on Decstation 3100 systems to \$68,500 on Decsystem 5800 series computers.

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PCs & WORKSTATIONS

Windows loyalty lives, but OS/2 gains support

BY JAMES DALY
OF STAFF

ARLINGTON, Va. — Microsoft Corp.'s Windows 3.0 is still the popular bet of personal computer software developers, but IBM's beleaguered OS/2 2.0 is not out of the picture yet. A sig-

Wait and see

Almost half of a group of software developers want to see OS/2 2.0 before they decide to port their products to it

Number of respondents Base: 40



Source: American Software Association

ificant number of developers are ready to build OS/2 2.0 applications, although they want to ensure that the update looks good when it arrives in limited quantities next month, according to a survey of the 363 member companies of the American Software Association (ASA).

That should be music to the ears of officials at IBM, where delays in delivering the OS/2 update have cut deeply into the credibility of the undelivered product. The regular series of missed arrival dates has even led

some early OS/2 users to Windows 3.0. "OS/2 is dead," one information systems director said recently.

Still considering OS/2

But not according to software developers surveyed by ASA, the software division of Adapco, which was recently renamed the Information Technology Association of America. Although they have adopted a cautious approach to OS/2 2.0, they have not discounted its potential: Nearly 30% of the respondents said they are developing for OS/2. Forty-one percent of the respondents indicated they are developing for Windows, and 18% are developing for both.

The reason OS/2 2.0 is a new and vastly improved OS/2, the report said. Not only will it run all DOS applications, but it will even multitask them and run 32-bit applications. It will also come with the OS/2 Presentation Manager graphical user interface reportedly cost less than the price of DOS and Windows combined.

Although the survey was made before Microsoft announced it would not support OS/2 Presentation Manager in its forthcoming Windows NT and IBM announced its pact with Apple Computer, Inc., ASA information technology consultant Martin Ennis said it would not have drastically changed the results of the summer survey. "We called back 20% of our respondents."

Continued on page 47

Color printer market blossoms

BY CAROL HILDEBRAND
OF STAFF

This may be the Year of the Sheep, not next is the Year of the Monkey, but if you printed a calendar on your local office printer, one thing would be certain: It's not quite the Year of the Color Printer.

Although analysts agree that there is a huge potential market for color on the desktop, it has yet to break through, remaining largely confined to such specialty markets as high-end graphics and print shops.

This is largely because technology that shoots out presentation-quality hard copy has not come down to a price point that appeals to a broad base of cost-conscious business users.

Changing times

However, it looks like things are changing. "We've seen more activity over the last six months than in the past seven years," noted Peter Testin, vice president and director of the color hard-copy research service at BIS Strategic Decisions in Norwell, Mass.

Testin said he sees Adobe Systems, Inc.'s Postscript Level 2 playing a much larger role as Postscript printers take a price slide. Level 2, the newest version of Adobe's page-description language, contains enhancements to its color-handling features that printer manufacturers are just beginning to exploit.

Although there is no single reason to predict that color printers are poised for breakthrough, analysts said the follow-

ing technologies look promising.

• **Dye sublimation.** On the high end of color for the desktop, dye sublimation printers, also known as dye diffusion, produce color images of near-photographic quality. The process uses a special type of ink-based film sheet that is transferred onto paper that has been specially treated for the process. Currently in the \$20,000 range, prices are gradually heading down to the mid-teens. For example, Rasteropac Corp. introduced one at the recent Seybold conference in San Jose, Calif., for \$10,995. However, buying enough memory — not included in the base price — could cost up to \$4,500 more.

• **Thermal transfer.** In the midrange of color quality, thermal transfer printers are becoming

popular for printing office presentations and reports or medical and scientific images. Pricing can run from \$4,000 for a dumb printer with no controller to \$10,000 for a model that prints tabloid-size paper.

• **Ink-jet.** This low-end color technology has been gaining ground recently as modifications in ink formulation and improved inks have brought it to near-laser quality. While its color clarity is not on a par with its more upscale brethren, its pricing is more attractive. A Hewlett-Packard Co. Deskjet 500C, for example, costs about \$1,695.

Testin said what he calls "color capable" printers, or those that print color along with the

Continued on page 46

Emergence

The next few years will see color, compact desktop printers coming into their own



	U.S. 1990	
	Unit shipments (in thousands)	Sales
Electrophotographic (Laser printers)	none	none
Ink-jet	71	\$146.3 million
Thermal transfer	23.4	\$194.2 million

	U.S. 1995 (estimated)	
	Unit shipments (in thousands)	Sales
Electrophotographic (Laser printers)	10.1	\$134.4 million
Ink-jet	495	\$877 million
Thermal transfer	49.1	\$306.9 million

Source: BIS Strategic Decisions

CV Chart: Janet Gennaro

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Irvine, CA 92718
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The Interface Builder™ makes it much easier to design programs that work exactly as you envision them. You use

where to look. Updating is just a simple matter of modifying one of your objects.

Of course, in the world of NeXT workstations, custom applications continue to offer unique benefits even after they've been deployed. They're easy to use and consistent,

the mouse not only to place and resize your interface objects, but to change their attributes and show how objects interact – all without writing even a trace of code. Interface Builder also helps you manage every aspect of your application and all of your code (both C++ and Objective-C are supported).

However, this is only a small part of the power you wield, because NeXTStep's object library is completely open. That is, you're free to customize the behavior of any object via sub-classing, and you can also create new objects that instantly become as easy to work with as the ones we supply.

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so training time is minimized. They offer stunning graphics and full access to all system services. In addition, they

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The NeXTStep development environment delivers all the benefits of a true object-oriented system. Sophisticated application objects are all provided, along with the power to sub-class and create exactly the objects you need.



Software 'robot' takes over tedious tasks to free users

Direct Technology's tool set writes programs to perform repetitive chores

BY CHRISTOPHER LINDQUIST
CW STAFF

Computers have long been lauded as an ideal means of automating many tasks in a business setting, but users often find themselves merely scrolling through screens to find information they used to thumb through pages for. Automator, a language and tool set from Direct Technology Ltd. in New York, makes a computer into a software "robot" designed to perform repetitive, time-consuming tasks without user interaction.

Originally conceived in 1985 as a way to automatically move data from mainframes to personal computers, Automator is now a full-fledged programming language that users describe as being on the level of Basic. Developers can write programs with Automator that perform any function that could be performed by a user.

Sound investment
Gary Capitani, manager of business support systems at Mitsui and Co. in New York, said his company purchased Automator in March initially to automate file transfers between a Unisys Corp. mainframe and a Novell, Inc. network.

The company originally contracted with Unisys to write a custom program for the purpose but decided to try Automator as

well, he said.

The Automator solution stuck. "It provides the flexibility and gives us the functions we needed," Capitani explained. He added that the product will also be used in the future for systems testing.

Data transfer is only a relatively simple example of what can be done with Automator, however.

"The [Automator] stuff we're using watches our batch cycle at night," said Gail Rothman, vice president of administrative data processing at Lehman Brothers Division in New York, which has been using Automator for more than a year.

"It checks for certain processes getting into trouble and calls the appropriate programmer" via beeper, she said. This eliminates the need to have someone monitor the system overnight, which can cut costs.

Todd Woodard, assistant to the regional general manager at Household Finance Corp. in Chicago, said he uses Automator for just that purpose—saving money. He started using Automator in April 1990 as a means of doing his job, finding tasks that could be done by machine instead of performed manually and automating them. The result was lower expenses.

"We've cut quite a few people off our payroll because of this," Woodard said.

Automator is available in sev-

eral versions: mi, the entry-level product; qa, which includes additional development tools; and recently one for Microsoft Corp.'s Windows.

The mi version costs \$1,995 and contains Learn, a program generator and editor, an intermediate compiler and the Automator Control Language.

Automator qa costs \$5,495 per license and includes an artificial intelligence-based Navigator program to help construct systems testing programs.

Automator mi, Automator qa, Automator for Windows.

Direct Technology Ltd., New York.

Automator is a language and set of tools intended to let users automate functions normally performed by users at a PC.

Users can automate any function that can be performed by a user sitting at a PC, eliminating the need for constant user interaction and monitoring.

Lower costs through reduced personnel requirements.

Automator mi, \$1,995; Automator qa, \$5,495; Automator for Windows, \$695.

CW Chart: David Goodrich

Qview and Qreport modules are also included, allowing developers to collect data about systems tests.

Automator for Windows, which was recently released, costs \$695 per license. Volume discounts are available.

Next's layoffs not alarming customers

BY ROSEMARY HAMILTON
CW STAFF

Although Next Computer, Inc. sent some confusing corporate messages earlier this month, at least two customers saw no need to sound the alarm bell.

Within a week, Next founder Steve Jobs was stressing the financial health of the company and proclaiming he would take it public within 18 months. Then, the company acknowledged a layoff of approximately 30 people, or 5% of its workforce.

"We don't really know why they did that," said Hadar Pedhazur, a vice president at UBS Securities, Inc. in New York, where 22 Next systems are installed. "I rarely take [layoffs] as negative signals, unless they are really massive."

Greg Miller, information systems director at the law firm of Marger, Johnson, McCollum & Solowitz, Inc., expressed a simi-

lar opinion. "Am I in a cold sweat because 30 people got laid off? No," he said.

UBS has been running Next equipment since earlier this year and considers itself a satisfied customer. The securities firm selected Next over other workstation vendors, including Sun Microsystems, Inc., because of what Pedhazur said is a superior development environment.

"We can create very sophisticated applications in a short time," he said of the Nextstep software environment.

Accentuating the positive
Pedhazur said there was some discussion in his office about the reported Next layoffs last week. "There are obviously varied perspectives, even internally here," he said. "This could be a good decision. Hopefully, this is the right move early on in the game and not a sign of bad things."

Miller said the law firm has

been running several Next systems since last fall. It completed an evaluation of Sun workstations as well as Apple Computer, Inc. Macintoshes.

"We knew we wanted the ease and flexibility of a [Macintosh] with all the power and client/server capabilities of a Sun," Miller said. "When you converge those, you come up with a Next. When we evaluated all three, that's what it taught us."

Miller said that the financial condition of Next does not concern him much because he believes the company's core technologies would get picked up by another vendor should the company sink.

"Frankly, I couldn't care less if they went belly up tomorrow, but I'm sure they won't," Miller said. "If they declared bankruptcy, someone would take their technology. There's too much there."

New New

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- highlight program-language comments
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- change file attributes

A special upgrade price of \$49 plus shipping and handling is available until Dec. 31, 1991. We're so confident you'll love SPF/2 that we'll refund your purchase price if you're not completely satisfied.

If you or someone else in your department wants a test drive, call for our free demo diskette. Actions speak louder than words. Once you get your hands on SPF/2, SPF/PC will become only a fond memory. (SPF/PC is still available for 8088 and 80286 DOS machines).

See for yourself today. Just call 800-648-6700 and ask for demo disk #214. Quantity discount pricing and Multi-User licensing is available.

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Formulary's bulletin boards on call for doctors

BY CHRISTOPHER LINDQUIST
CW STAFF

Prescribing new drugs can be a confusing and difficult task for a hospital, especially if doctors do not know about potential side effects—or that a new drug even exists. Making that job easier is the goal of The Formulary, Inc.'s Unix-based electronic bulletin board system.

More than 1,500 hospitals make over 600 calls per day to the system's 800 number to discuss new drugs, get advice on their use, post possible side effects and collect information from the combined knowledge of thousands of users. Users share information with others, said Dr. James Selevan, publisher at The Formulary. "There's just a potpourri of information that is available to them that they are putting up themselves." Subscribers to the company's pub-

lished monographs receive access to the bulletin board as an added service.

Selevan, a physician with an undergraduate degree in electrical engineering, started the board in 1986 as a platform for subscribers to the company's published reports to discuss

their own findings about new drugs. He said he looked at several DOS-based board systems but found them to be limited in the number of phone lines they could support—usually one or two—which he knew would not be enough as the system grew. "We wanted to have a multiuser

environment," he said.

He then evaluated Telemate, a Unix-based system from MMB Development Corp. in Manhattan Beach, Calif. The software could support more than 10 lines, which gave Selevan the flexibility he needed to expand the system as more users sub-

scribed. He is currently running 12 lines, each attached to a 2,400 bit/sec. modem, though 9.6K bit/sec. modems are on the way, he said.

Even though Selevan is using Telemate to provide extra value to his pharmaceutical publishing, he indicated that its uses stretch well beyond his particular application. "Any industry could use this," he said.

Color printer market grows

CONTINUED FROM PAGE 41

true black ink necessary to print text, will move color into the mainstream. He cites as a low-end example the HP Deskwriter C., a monochrome printer that also accepts a three-color ink cartridge. Although users must switch back and forth between the cartridges to get both color and full black text, at \$1,095, the printer is attractive for people who want to juice up reports and graphics with a shot of color. More representative members of the genre include Dataproducts Corp.'s Jolt series and Tektronix's Phaserjet family of printers.

Although these technologies are close to attracting a mass market, "Prices need to come down more on both printers and consumables," noted Bill Gott, a printer industry analyst at Computer Intelligence/Infocorp, a market research firm in La Jolla, Calif. Gott cited the cost of consumables for both higher end technologies. The film and paper for dye sublimation can cost a hefty \$4 per page; consumables for thermal transfer machines cost about 50 cents per page.

Another problem is the dearth of low-cost color copiers. "You need the ability to reproduce that color hard copy once you have it," Gott said. Testin agreed, saying that he expected the office market to see an influx of less-expensive copiers in the next few years.

"Everybody is waiting for the advent of the color laser printer," Testin said. He expects Canon to come out with a color laser printer by next year's end.

Born In



Dataease touts DBMS upgrade

BY CHRISTOPHER LINDQUIST
CW STAFF

Dataease International, Inc. has announced enhanced versions of its Dataease relational database software. The company also announced plans for a pending

merger with a UK-based distributor, Sapphire International PLC.

Dataease Version 4.5 and Dataease SQL Connect are applications development tools intended for creating single-user, file-server and client/server

applications.

Enhancements to Dataease 4.5 include DOS and OS/2 native engine support availability, embedded calls to third-generation language subroutines, including C and assembler, improved multiuser performance and support

for Microsoft Corp.'s Windows 3.0 386 enhanced mode. Dataease SQL Connect drivers will also support Oracle Corp.'s Oracle Server and Microsoft/Sybase, Inc. SQL Server, both scheduled for availability Nov. 15, as well as IBM's OS/2 Extended Edition Database Manager and Micro Decisionware, Inc.'s Database Gateway for DB2, slated for delivery Dec. 15.

Dataease 4.5 will have a list price of \$795 for the stand-alone product. Dataease SQL Connect drivers will be available for \$495 each. Dataease Server Access five-packs will cost \$1,095.

In addition, users who purchase Dataease 4.5 will receive a coupon good for 50% off the price of the Dataease product for Windows, which is scheduled for release in the first quarter of 1992.

Dataease also announced its plans to merge with Sapphire, the largest international Dataease distributor. The merged companies will operate as Dataease Sapphire International Group.

Bell Labs

OS/2 gains support

CONTINUED FROM PAGE 41

dents to see if their opinions had changed [after the Microsoft and IBM announcements], and their overwhelming response was no," he said. "Based on the lack of specificity in the Apple and IBM announcement, most OS/2 Windows developers were unaffected."

If IBM delivers on its lofty promises for OS/2 2.0, Microsoft will have to work hard to maintain its status as the sole source of a standard operating system for IBM Personal Computers and compatibles, the ASA report added.

While Windows 3.0 has been a success by nearly every measure, it is not without critics, who complain it is subject to bugs, can be difficult to install and uses so much memory it is only available to users of more powerful PCs. The result has been a latent support for OS/2. "Microsoft has outmarketed IBM," said Shirley Ea, president of Software Corporation of America. "With OS/2 2.0, IBM is delivering upward compatibility with DOS and Windows."

Still, high hopes for OS/2 have not eliminated all skepticism. For those companies already developing Windows applications, caution about OS/2 2.0 was widespread. Almost half, 48%, said they would wait before porting their application to OS/2. 34% had no plans to port.

COMPUTERWORLD



with your computer/modem

Acerpower 486SX: Power at lower price

Technology Analysis—A roundup of expert opinions about new products. Summaries written by Freelance Writer Suzanne Weisel and New Products Writer Derek Slater.

Offering more power at a lower price than high-end 386-based systems, Acer America Corp.'s Acerpower 486SX 20-MHz personal computer is trying to be one of the first of its kind to make a splash. **Performance:** According to *InfoWorld*, the Acerpower 486SX is on the slow side. Its memory design offers no innovations to boost performance. Also, the video memory cannot be expanded beyond 512K bytes. **Expandability:** The small foot-print unit has four 16-bit expansion slots and space for one 5¼-in. and two 3½-in. drive bays. There is an upgrade socket that accepts a 486DX/33 or 486DX/50 CPU, and there is room for a math coprocessor. **Ease of upgrade:** There is excellent upgradability by merely plugging in a new CPU chip. **Service and support:** Support includes a toll-free support line, a two-year warranty and a 30-day money-back guarantee. **Value:** With 2M bytes of random-access memory and a 3½-in. floppy drive, the Acerpower costs \$2,495. With a 120M-byte hard drive and a monitor, it costs \$3,495.

Acer America's Acerpower 486SX

Reviews	Performance	Ease of upgrade	Expandability	Service and support	Value	Overall
<i>InfoWorld</i> 3/23/91	Good	NC	Good	Excellent policies	Good	ESP
<i>Byte</i> 10/1/91	Relatively slow CPU	Automatically adjusts clock speed	Small footprint	NC	Not a bad choice	Good construction
<i>PC Computing</i> 7/91	Excellent	Steady plug in CPU chip	NC	NC	Lowest price does many things	Highly recommended
<i>PC World</i> 7/91	NC	NC	Limited in four slots	NC	Lowest price is highest priority	WE agree
Users						
Scott O'Brien, Best Dynamics Inc.	■	■	■	■	■	Upgradability is top priority
John Rothchild, Personal Optics	■	NC	■	■	■	Plug and play
Bob Smith, Independent Business Windows, Inc.	■	■	■	■	■	Very quiet and dependable
James Campbell, The Equitable Western Operations	■	NC	■	■	■	Very quick
Analyst						
Jerry Curran, Publisher Information Services	■	NC	■	■	■	Solid system

Key: ■ Very good ■ Good ■ Fair ■ Poor Reviewers evaluations are excerpts from articles. Refer to actual reviews for details. User and analyst ratings are based on subjective survey. NC, No comment. *Adjusted ratings based on 3.5 scale.

Vendor financial information

Acer America Corp., based in San Jose, Calif., is part of the Taiwan-based Acer Group, a worldwide microcomputer manufacturer and OEM supplier. The Acer Group's 1990 revenue totaled \$645.5 million. The company has more than 1.8 million systems installed. The company acquired Altek Computer Systems, a manufacturer of subnotebook and Ultra systems, in September 1990.

Acer America responds

Judy Wong, product marketing manager:

Performance: Under normal conditions, in an office environment—not a testing environment—we get very good, if not excellent, benchmark results. Video RAM will be expandable to 1M byte sometime around the end of the year. **Expandability:** Small footprint means you have to make sacrifices in the number of expansion slots.

BusinessVEISA: Fast and reliable

ALR's BusinessVEISA

Reviews	Performance	Ease of upgrade	Expandability	Service and support	Value	Overall
<i>InfoWorld</i> 3/23/91	Excellent CPU upgrade	NC	Good	Good	Good	TSP
<i>Byte</i> 10/1/91	Responsive	Not as simple	NC	NC	Some 486/25 with better price	Flagged
<i>PC Computing</i> 7/91	State of the art	NC	Excellent design and ease	NC	Low initial cost	Hard to beat
<i>PC Magazine</i> 10/23/91	Enter class average	Simple single-card switch	Should be enough	NC	Solid	Well engineered
Users						
Paul Ryan, Infotek Design Group	■	■	■	■	■	High-priced upgrade
Don Pifer, Loyola University Medical Center	■	■	■	■	■	Very, very easy swap
Dave Wilson, Mountain Corp.	■	■	■	■	■	Five values in one
Kevin Wiegert, Wright Minerals	■	■	■	■	■	With cache pack, 3 flex
Analyst						
Jerry Curran, Publisher Information Services	■	NC	■	■	■	Excellent buy if you can find it

Key: ■ Very good ■ Good ■ Fair ■ Poor Reviewers evaluations are excerpts from articles. Refer to actual reviews for details. User and analyst ratings are based on subjective survey. NC, No comment. *Adjusted ratings based on 3.5 scale.

Vendor financial ratings

Alt. title	Long-term stability	Short-term performance
Altek Systems, Boulder Valley Systems, Inc.	■	■
Joe McGowan, McGraw-Hill Co.	■	■

Advanced Logic Research, Inc., based in Irvine, Calif., stated in a preliminary report that its fiscal year 1991 revenue was approximately \$277 million, up from \$172 million in 1990.

ALR responds

Dave Kirby, product marketing manager:

Expandability: I've never heard of the blocked slots being a problem. There are six slots, so there's a room for cards, and we kept the small form factor.

Value: We've just made a large move in module pricing. As Intel reduces prices, we reduce prices on modules. So, long term, the customer may get a better value than when he originally bought the system.

Advanced Logic Research, Inc.'s BusinessVEISA upgradable personal computers are fast, reliable desktop systems, according to reviewers.

Performance: The 486SX 25-MHz model has a supplemental system cache of 64K bytes and includes a disk-caching controller. The motherboard supports up to 49M bytes of 32-bit random-access memory.

Expandability: There are two half-height drive bays and one internal and one external 3½-in. drive bays. There are two full-length 16-bit and four full-length Extended Industry Standard Architecture expansion slots as well as three proprietary slots for the processor board, the optional external RAM cache board and the optional memory expansion board. Some proprietary add-in boards block access to other expansion slots.

Ease of upgrade: A board swap upgrades the CPU from a 33-MHz 386 processor to either a 25-MHz or a 33-MHz 486 processor. Upgrading is relatively easy, reviewers said.

Service and support: There is one year of free depot service available from Intel Corp. as well as fax and bulletin board service support. Telephone support is not toll-free. **Value:** The 33-MHz 486SX systems are priced at \$3,495 with 5M bytes of RAM and a 120M-byte hard drive.

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| <input type="checkbox"/> Hewlett-Packard | <input type="checkbox"/> Apple Macintosh |
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| <input type="checkbox"/> XCMDS Extender for HyperCard |
| <input type="checkbox"/> EDA/Dynasink Extender for DB2 |
| <input type="checkbox"/> EDA/DOE Extender for Windows |

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NEW PRODUCTS

Software applications packages

Bell Atlantic Network Services, Inc. has announced Version 2.0 of Thinix, its visual data management software.

Thinix users can present and analyze spreadsheet and database information visually through map color-coding, for example. The new version supports enhanced linking between applications and improved organization of data.

It also includes a Palette Browser, which allows reuse of visual objects that have already been created for other applications. Import filters for additional spreadsheet file types have also been added.

The software costs \$495. Upgrades from previous versions cost \$45.

Bell Atlantic Network Services
3rd Floor, C&P Building
145 Fayette St.
Morgantown, W. Va. 26505
(215) 768-5683

Computer Associates International, Inc. has introduced CA-Text, a word processor for Mi-

crosoft Corp.'s Windows 3.0 environment.

CA-Text includes a configurable tool bar, mail-merge capability and Dynamic Data Exchange support. It also supports the Windows Multiple Document Interface and includes a spell checker and table editor.

The product costs \$225.

CA
711 Stewart Ave.
Garden City, N.Y. 11530
(516) 227-3300

Systems

Tatung Science and Technology, Inc. has designed the Composition 40, a scalable processor architecture workstation.

The system includes a 40-MHz processor, a 19-in. color monitor, three 5.25-in. disk drives, 8M bytes of memory and a 207M-byte hard drive for \$9,990.

Tatung Science and Technology
2080 Ringwood Ave.
San Jose, Calif. 95131
(408) 435-0140

Paion, Inc. has announced the Series 3, a handheld computer with a 16-bit Intel Corp. 80C86 processor.

Models with 128K and 256K bytes of random-access memory are available for \$425 and \$495.



Paion's Series 3 handheld computer has built-in applications such as Microsoft Word

respectively. The Series 3 weighs 9 ounces. Built-in applications include a word processor compatible with Microsoft Corp.'s Word, a database program, a communications link and an agenda manager.

Paion
118 Echo Lake Road
Watertown, Conn. 06795
(203) 274-7521

Software utilities

Atre/Intec, Inc. has announced Learn Windows, a software tutorial for Microsoft Corp.'s Windows 3.0 environment.

The program includes two sections: A 30-minute tutorial program that is said to provide 80% of the basic skills needed for

Windows and a Windows in-depth section that provides more advanced information and skills. Learn Windows costs \$49.95.

Atre/Intec
14 Elm Place
Rye, N.Y. 10580
(914) 967-2037

Odyssey Development has released Iqys Publisher and Iq-RunTime.

Both products extend the support of the firm's Iqys Full Text Retrieval package. Iqys Publisher (\$495 for a site license) works with centrally published databases; Iq-RunTime (\$35 per user, 25-user minimum) is a run-time version of Iqys.

Odyssey Development
17th Floor, Burbank Tower
3900 W. Alameda Ave.
Burbank, Calif. 91505
(818) 972-1796

Macintosh products

Computerision, a division of Prime Computer, Inc., has begun shipping Versacad/Macintosh Revision 1.0.

Application programming interfaces to Versacad/Mechanical, Versacad/Architect and Versacad Drawing Manager are now bundled with the software at no

extra cost. Other enhancements include faster plotting and locked levels for displaying uneditable templates.

The price has been reduced to \$1,995.
Computerision
100 Crosby Drive
Bedford, Mass. 01730
(617) 275-1800

Database management systems

Software Publishing Corp. has begun shipping Version 1.3 of Superbase 4, its Microsoft Corp. Windows 3.0-based relational database management system.

Enhancements include improved applications development tools and image handling capabilities, as well as an embedded SQL command set. Performance has also been improved, the company said. A single-user license costs \$695.

The company also announced the Developer's Edition Version 1.3 package. It includes the Superbase software, network extensions and the right to create run-time applications. The kit costs \$995.

Software Publishing
3165 Kiefer Road
Santa Clara, Calif. 95051
(408) 986-8000



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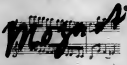
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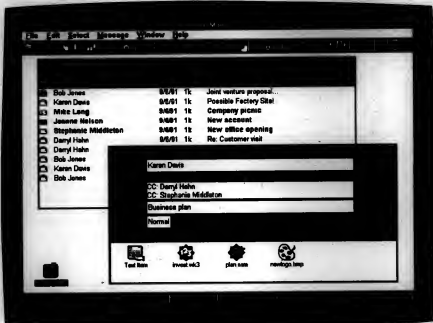
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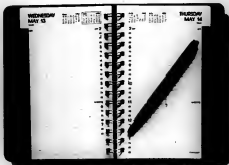
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SNMP takes shape

This autumn has brought a whirlwind of products that combine management of proprietary network systems with management of anything that complies with the Simple Network Management Protocol (SNMP).

The following is a roundup of the highlights:

- Network Equipment Technology, Inc. (NET) announced SNMP Manager, which is based on Hewlett-Packard Co.'s Openview Network Node Manager 2.0 software. Priced at \$15,000, the software is scheduled for availability this quarter. The new manager will monitor failures on SNMP-compliant devices and also track Transmission Control Protocol/Internet Protocol (TCP/IP) traffic levels, NET said.

Support for other types of protocols is likely at a future date, an NET spokeswoman added.

- Timples, Inc. has incorporated SNMP-based local-area network management into its Time/View 2000 Network Management system. Upgrades for existing Time-view systems range from \$10,000 to \$16,000 and are scheduled to ship in the first quarter of 1992.

- Network, Inc. in Irving, Texas, announced Series 4000 Discovery Management System, a Microsoft Corp. Windows-based SNMP system that is said to manage SNMP-compatible network systems. Novell, Inc. Netware devices and Network's own Series 4000 intelligent hubs.

Users can call up SNMP and IPX data on the same window, using a consistent icon- and graphics-based interface, Network said. The system is priced at \$2,395 and is scheduled to become available in the first quarter of 1992.

- Crosscom Corp. in Marlboro, Mass., announced that its Iln product for internetworking IBM Token Ring products supports SNMP. This will allow IBM users with heterogeneous Token Ring and Ethernet LANs to manage both systems from the same SNMP manager, Crosscom said.

- Racal-Datcom in Boshoro, Mass., announced Version 2.0 of its Roll Call network management software, which is said to provide a Windows-based, SNMP-compliant management system.

This will allow Roll Call to manage SNMP-compliant devices in addition to Racal's personal computer Ethernet cards, the vendor said. The SNMP software will also collect statistics on overall Ethernet traffic, TCP/IP transmissions and Novell, Inc. IPX/SPPX transmissions, a Racal spokeswoman said. Priced at \$1,395, Version 2.0 is scheduled to be available in January.

Net management worlds move together

CONTINUED FROM PAGE 57

for alerts and view various types of devices on the same map.

Delmarva Light and Power Co., for example, is working on a graphics-based network management console that will collect information from IBM's Netview, Racal Datacom's CMS 6000 and Cabletron Systems, Inc.'s Spectrum and display it in a common Open Software Foundation (OSF) Motif format (CW, Nov. 4).

Delmarva is not the only company that could not find the right integrated network management solution among existing proprietary platforms.

"Network management is a major

challenge" for firms with multivendor networking environments, said Elaine Bond, chief technology officer and vice president at The Chase Manhattan Bank NA and president of Open User Recommended Solutions group. "Third-party products are good but custom-crafted. We want uniformity."

Vendors have been slow to reach consensus on full-function specifications that meet everyone's needs, Bond said. Conversely, quickly finalized standards such as SNMP "tend to be very narrow, not rich in functions," she said.

To further complicate the situation,

the OSF recently announced its choice of components for the Distributed Management Environment (DME) standard. While DME may eventually provide the glue for various vendors' network management systems, its immediate effect may be to freeze the market, Pastore said.

Users have a thorny choice: They can choose from among a growing throng of partially standardized, partially integrated management products; or they can put their integrated management plans on hold until vendors deliver the promised commercial DME-based products.



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INTERNATIONAL SHORTS

BT to resell Stratacom Fastpacket IPX

British Telecommunications PLC (BT) last week announced an agreement with Stratacom, Inc. under which BT will resell Stratacom Fastpacket IPX networking systems worldwide. The move is intended to let BT customers take advantage of cell-relay and frame-relay technologies.

General Electric Information Services (GEIS) is extending its international X.400 electronic mail service to exchange mail with additional X.400-compatible international E-mail services. Overseas E-mail carriers whose users can exchange mail with GEIS users now include Radio Austria, British Telecom PLC

and Postal Telephone and Telegraph authorities in Switzerland, Germany, Sweden, Finland, Norway and the Netherlands.

Régie des Télégraphes et Téléphones, Belgium's telecommunications authority, has reduced international videoteleconferencing tariffs by 30%. The carrier has also reduced 64K bit/sec. digital terrestrial leased lines between Belgium and Japan by 25%. New rates are effective now.

U.S. Sprint Communications Co. and Telefonos de Mexico have jointly launched Mexico's first public

videoteleconferencing room and international service. The service will provide Mexico-based users with links to the Sprint Meeting Channel, a videoteleconferencing network that serves 32 nations worldwide, with both rooms and gateways to private videoteleconferencing networks, Sprint said.

Infonet has acquired the assets of Orion Network Communications Ltd., an international provider of communications software and services for IBM Systems/36 and Systems/38, Application Systems/400 and personal computers. Orion's assets will be added to Infonet's international network services line.

Scientific Atlanta, Inc. will provide equipment needed to set up satellite-based networks in the Philippines and Papua New Guinea.



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Smart hubs may demand trade-offs

CONTINUED FROM PAGE 57

standardize on Cabletron just because "Cabletron kills Chipcom" is the number of ports supported in a given hub, which lowers the per-port price.

However, Fishen acknowledged that unlike other hub vendors, Chipcom can support multiple independent Ethernets within one box for supporting, for example, separate academic and administrative networks he does not want linked.

Cabletron confirmed that to date, multiple Ethernets in its hub must blend into one internetwork.

Strategic ability

For users with many small branch sites, a vendor's ability to offer low- to high-end hub families may be important. This could be a factor in "locations where you need to get price points lower to justify them," according to Ken Starkey, associate director of communications at Synopsys shop Bear, Stearns & Co., Inc. in New York.

Observers expressed concern about hubs' ability to handle the latest generation LAN, the 100M bit/sec. Fiber Distributed Data Interface (FDDI) — despite recent heavy-duty hub backplane architecture announcements from likes of Ungermann-Bass, Inc., 3Com Corp. (CW, Sept. 30) and, most recently, a 2G bit, fast-packet bus architecture from Hughes LAN Systems.

The moves by these firms to speed in-hub internetworking "are interesting from a technical standpoint, but we haven't reached a traffic situation yet that we can't handle by network segmentation," said Scoggin. He said he will not be running any FDDI until 1993.

Users were divided on the degree of redundancy needed in high-end hubs. Jim Hawley, director of information systems at Benton Harbor, Mich.-based Wheelpool Financial Corp., said he recently purchased seven Bxter Corp. hubs largely because they are built on solid-state chips rather than more failure-prone electro-mechanical relays. Because his staff is small, "we like the equipment to take care of itself," he said.

Scoggin said that based on "our failure rate and the speed with which we perform maintenance, a lot of redundancy other than power is not a worthwhile feature for us. If we were a brokerage firm, however, it would be a different story."

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User picks Pathworks as lesser of LAN evils

BY JIM NASH
CW STAFF

Stubbornly refusing to give up on Microsoft Corp.'s LAN Manager as a core networking technology, Alcatel Network Systems has walked nonchalantly among licensed versions of LAN Manager.

Jim Woodard, senior network systems programmer at Richardson, Texas-based Alcatel, said whatever the flavor, LAN Manager—the basis of 3Com Corp.'s 3+Open and Digital Equipment Corp.'s Pathworks—is generally better than its competitors.

Woodard moved his 1,500 personal computers from 3+Open first to LAN Manager and now to Pathworks. The moves have left him upset. Although Woodard said he was unable to give specific figures, he said Alcatel was faced with “a major cost” as it sorted and re-sorted through its information.

“A year has been taken out of my development cycle,” he said, as Alcatel, a major European telecommunications company, tries to determine the best networking software. The decision began this past spring, he said. Pathworks won out three weeks ago.

“Any LAN Manager system is overly complex,” Woodard

said. “They seem to require that a reader get involved” in any significant decision about the network. Nonetheless, those systems based on LAN Manager outrun competitors.

Vines hooked on servers
Benyan Systems, Inc.'s Vines “is too server-centric,” he said. Novell, Inc.'s Netware has not fired his interest, either. “I’m unimpressed with Novell and their technology. And I’m uncomfortable with their need for special categories of servers.”

Woodard added that LAN Manager-based systems are more oriented to a client/server architecture and “will run on pretty much any” workstation. They are not equal, however. Woodard said one of his biggest beefs with both LAN Manager and 3+Open has been their seemingly arbitrary limit on Apple Computer, Inc.'s Macintosh OS/2 clients are limited to 49 Mac Appletalk connections, he explained. “That’s an arbitrary figure. Microsoft could never tell us when they were going to fix that.” There is no such limit for Pathworks, he said.

The company said it is not sure when the changeover from LAN Manager to Pathworks would be completed. A review of the process is scheduled for January.

Newspapers eye info allies

BY GARY R. ANTIES
CW STAFF

Newspapers, which appear to be losing the war with the regional Bell operating companies (RBOC) over the RBOCs’ right to offer information services, could take a recent agreement between The Tribune Co. and America Online, Inc. as a model defense against the Bell Bell.

The two firms said they will develop a locally oriented, interactive personal computer service. The service, to be offered in Chicago early next year and later in other cities, will let users interactively share news and entertainment information from Tribune businesses such as the Chicago Tribune, the Chicago Cubs, *The Orlando (Fla.) Sentinel* and Tribune-owned radio and television stations.

The Tribune Co. also made a minority investment in privately held America Online, which recently changed its name from Quantum Computer Services, Inc.

Financially strapped newspapers, faced with loss of readership and advertising revenue, are seeking new high-technology ways of conveying information. The industry has strongly opposed the entry into information services markets by the RBOCs, which were freed in July from a term of the 1984 AT&T breakup agreement that had barred them from originating or

processing information. In testimony to the newspapers, a federal appeals court and now the U.S. Supreme Court have upheld the immediate removal of the ban.

Several of the Bell companies have said they want to work with newspapers and other purveyors of information, not compete against them. “We’re looking for ways to get out of the adversarial role,” said Scott Ticer, operations manager at BellSouth Corp. “We’re meeting with individual newspapers, and we’ve discussed teaming with news organizations,” he said.

Traditional role

But newspapers are wary. Terry Maguire, senior vice president of the American Newspaper Publishers Association (ANPA), said newspapers are only willing to team with the Bells if the telephone companies stick to their traditional role of providing transmission only. Otherwise, the RBOCs may attempt to exert editorial control, or they might enter into strategic arrangements with some newspapers at the expense of others, he said.

Newspapers will seek teaming arrangements with noncarriers such as America Online, rather than with telephone companies, Maguire predicted.

But Gary Arlen, president of Arlen Communications, Inc., a Bethesda, Md.-based consulting firm specializing in interactive

communications, said newspapers will seek all kinds of electronic services partners, including the RBOCs. “You have to distinguish between where ANPA’s lobbying rhetoric ends and where newspapers themselves are really willing to deal. Newspapers have for years been finding new ways to get in bed with the RBOCs.”

Arlen cited agreements between Nynex Corp. and *Newday* and between BellSouth and *The Atlanta Constitution* in which the RBOCs offer electronic gateways to various databases.

“The fight is entirely over classified advertisement, where newspapers and telephone companies have different strengths,” Arlen said. In particular, while the Bells carry ads for services in their Yellow Pages directories, they would love to tap into the revenue stream from more perishable ads such as those for real estate, automobiles and employment, he said.

“Newspaper publishers are scared that if the RBOCs get any little foothold, they’ll take it all,” Arlen said.

America Online in Vienna, Va., provides nationwide interactive information and entertainment services, with an emphasis on communications with other subscribers. The first product of the joint venture, called Chicago Online, will be a local extension of that service.

NEW PRODUCTS

Local-area networking hardware

Two new Fiber Distributed Data Interface network interface boards for Industry Standard Architecture computers have been introduced by Exon, a Microbyte Corp. division.

The Exon 505F (\$2,395) interfaces to fiber networks. It offers 100M bps/sec. transfer rates at distances of up to 2,000 meters. The Exon 505S (\$1,495) connects to networks with shielded twisted-pair copper cabling.

Both products include drivers for use in Transmission Control Protocol/Internet Protocol and Novell, Inc. Network environments.

Exon
207 S. Peyton St.
Alexandria, Va. 22314
(703) 739-0800

Xircam, Inc. has announced Network Simplicity, a plug-and-play local-area networking system.

Network Simplicity incorporates Novell, Inc.'s Netware Lite and Network Corp.'s Simplicity

E-Mail along with external Packet Network Adapters and automatic installation software from Xircam. Cabling and connectors are also included in the package.

The company said users can install Network Simplicity without opening the cases of the personal computer nodes.

Pricing is set at \$649 for the Starter Pack for networking two PCs. The Expander Pack for each additional user costs \$399.

Xircam
26025 Mureau Road
Calabasas, Calif. 91302
(818) 878-7600

Local-area networking software

Punk Software, Inc. has introduced Proxy and Appmeter.

Proxy allows a personal computer user to control up to eight PCs in a network through a Microsoft Corp. Windows 3.0 session. According to the company, the product allows users to work on tasks in multiple DOS-based applications.

Proxy costs about \$395. Appmeter reports on user access to server-based applica-

tions, allowing network administrators to control the number of licensed users of a particular application.

Appmeter is priced at approximately \$495 per server.

Punk Software
222 Third St.
Cambridge, Mass. 02142
(617) 497-6339

Network management

Bridge Technology, Inc. has announced the Bridge/Monitor for OS/2.

The product provides remote monitoring and control of OS/2-based local-area networks. Network administrators can monitor performance as well as disk, processor and memory use for each node.

Pricing starts at \$5,000 and depends on the number of nodes on the LAN.

Bridge Technology
Suite 118
160 Commonwealth Ave.
Boston, Mass. 02116
(617) 424-6266

Diederich and Associates, Inc. has begun shipping Netscript for IBM AIX systems.

Netscript integrates manage-

ment of all network elements under IBM's Netview and Netcenter products. The product translates host commands into the language of each non-System Network Architecture element in the network.

The new version allows the integration of IBM workstations running the AIX operating system.

A one-time installation fee of \$10,000 includes the runtime module and runtime compiler. Additional runtime modules cost \$3,500.

Diederich and Associates
Suite 290
625 Fair Oaks Ave.
S. Pasadena, Calif. 91360
(818) 799-9670

Thomas-Cat Corp. has announced a Novell, Inc. Network Loadable Module (NLM)-based network management product for Token Ring local-area networks.

Sectra includes an NLM for Network file servers and a client component that runs under Microsoft Corp.'s Windows 3.0. Sectra monitors network events, maintains event logs in real time and controls node access. It features an IBM Common User Access-compatible

graphical user interface.

The client product collects data from up to eight servers running the NLM.

The server module is priced at \$495 per server; the client software costs \$295. A package bundling both products costs \$695.

Thomas-Cat
1906-R Kramer Lane
Austin, Texas 78758
(512) 836-1935

OS/2 networking

Enterprise Data, Inc. has released Upstream for OS/2.

The product provides unit-level backup and restore capability for personal computers and local-area networks running OS/2 connected to MVS mainframes.

It utilizes IBM's Advanced Program to Program Link-2 communications protocol for high-speed communications.

Retry-level pricing starts at \$14,000, including both MVS and OS/2 components. Site licensing and corporate licensing plans are available.

Enterprise Data
1055 Parsippany Blvd.
Parsippany, N.J. 07054
(201) 316-0500

A

B

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Where we go from here.

MANAGER'S JOURNAL

MANAGEMENT SHORTS

Ecology issues to be explored

The first international conference exploring a systems approach to global environmental issues will be held in Washington, D.C. Eco World '92 will be held June 14-17, 1992, at the Washington Convention Center.

Co-sponsored by the American Society of Mechanical Engineers, Eco World bills itself as the first forum for the technical and social debates currently taking place in the technical community. It will explore the impact of industrial, manufacturing and information technologies as a force for treatment of environmental problems.

Speakers include Andrew Steer, director of the 1992 Report on Development and the Environment at the World Bank; Denis Hayes, president and chief executive officer of Green Seal, Inc.; and Chauncey Starr, president emeritus of the Electric Power Research Institute.

Cleve Bench, a former systems programmer at the Scripps Clinic and Research Foundation in La Jolla, Calif., and other firms, has been promoted to director at Sundgard Recovery Services, Inc.'s disaster recovery center in San Diego.

Bench had been manager of software since he joined Sundgard in April 1990 from the Scripps Clinic.

Before Scripps, he worked in systems programming at Security Pacific Information Services, Inc. in San Diego and Lockheed Space Operations Co. at Vandenberg Air Force Base, Calif.

QUOTEABLE: Ronald Gidwitz, president and CEO of Helene Curtis, Inc., on the IS awareness level of the CEO community:

"With the amount of money we have to expend on it, we'd better be knowledgeable about it."

— *Response to an audience question at last month's Society for Information Management conference in Chicago.*

Insurer keeps the old with the new

Principal Financial will not abandon centralized computing in IS function shift

BY ROSEMARY HAMILTON
OF STAFF

After nearly 30 years of traditional centralized computing, the Principal Financial Group is setting foot outside of the glass house, though it has no plans to leave it entirely.

The insurance company will stay committed to centralized processing for key corporate applications, but it is also shifting some information systems functions to its business units. In addition, it eventually intends to adopt a cooperative processing computing architecture.

"We've been talking about cooperative processing for about three or four years," says Robert Delaney, vice president in charge of information systems at Des Moines, Iowa-based Principal Financial. "About a year and a half ago was the first time I spread the word throughout the company. Now everyone knows that's my vision."

However, Delaney, who has headed up the company's IS staff for 10 years, does not plan a radical change that would move the bulk of information processing out to the insurer's three main business units. In fact, the company is committed to a centralized corporate data center. A good portion of the 15% IS budget increase for 1991 went to completing a second data center that will serve as a backup to the primary facility, Delaney says. This year's budget was approximately \$64 million.

Delaney says this commitment

stems from the company's need to maintain high-level control over information. He views cooperative processing as an extension to the existing structure.

"In the insurance business, we provide information," Delaney says. "I don't believe dispersing the information

ee benefits and a pension group. The goal is to establish direct interaction between IS and end users. Project teams are now set up with a mix of IS and nontechnical staff members. In at least one case, an end user was appointed project manager. Delaney says the company has already realized benefits from this shift.

"The No. 1 benefit is the users are getting what they expect, and we are delivering in more of a time frame that they agreed to, [or] more so than we did in the past," Delaney says. "Our people understand the business better than before, so the quality is better."

Marty Rathje is a project director who spent 15 years on the end-user side at Principal Financial. Since early 1990, Rathje has managed a team of IS developers and end users who are tailoring and implementing a client administration system from Continuum Co.

"It has pulled [IS] closer to the user community," Rathje says. "I have direct access to them now, whereas in the past, you really had to set up meetings and make a special effort to spend time with them. People seem much more closely aligned with what we need to do than what we had in the past."

Rathje said there was some initial skepticism from IS staff members that this team structure would work. To relieve their concerns, Rathje set up clear roles for both users and developers.

"I don't sense any skepticism or concerns now from IS people that I'm running [the project]," Rathje adds.

Continued on page 70



Group 1. Goals
Principal Financial's Delaney's vision for cooperative processing is beginning to materialize

has ever made any sense. If anything, it would complicate things and decrease productivity because of duplications of data and a narrower view of the data."

However, two shifts are also under way. First, software developers are being relocated to the company's three business units: personal insurance, employ-

Teaching IS to ask why, not what

BY CLINTON WILDER
OF STAFF

Why ask why? Because it might just make your company run better. At Wisconsin Electric Power Co. in Milwaukee, the information systems department is trained to ask why. So when IS was asked to design a system for the personnel department to administer the utility's complicated employee absence policies, the IS user design team asked why the policies had to be so complicated in the first place.

The end result was a pilot program specifying a single policy of 25-day absence allocation for all employees—replacing a myriad of previous policies specified in numerous union contracts.

The philosophy of IS to ask "Why?"

instead of "What?" at Wisconsin Electric is the cornerstone of a quality and customer service program started two years ago. All IS employees undergo a two-day introduction to the program and eight days of in-depth training, said Larry Kosmatka, manager of IS planning.

Time for change

The questioning process on the absentee policy "did not result in some kind of massive system, but instead in a major change to our organization," Kosmatka said at the annual American Gas Association/Edison Electric Institute IS conference last week in Los Angeles.

The team that spurred the change process consisted of a leader from IS, two supervisors from the payroll/per-

sonnel department and two personnel administrators in other departments. There were some internal conflicts, Kosmatka said, and any changes had to be made together with the affected labor unions.

However, in the end, the team achieved a pilot program for two employee groups that went into effect last January.

Absenteeism is down in one group and slightly up in the other but without the kind of policy abuse that some change opponents had feared.

"We could have automated the old process with all kinds of great technology," Kosmatka said. "But instead," he added, "the team persisted and forced the organization to look at the root causes of absenteeism."

CLIPS



The Link

Summaries from leading scientific and management journals

"Turf Wars: Managing the Implementation of an International Electronic Mail System"

By Charlene A. Dylman, Charles E. Davies and August W. Smith

Journal of Systems Management
October 1991

■ One of the fastest and most efficient ways to communicate internationally is through the use of electronic mail. The authors outline a case study of how a Texas construction and engineering firm with a large international base struggled and succeeded with the implementation of its international E-mail system, saving half a million dollars annually.

In the original setup, E-mail operators used point-to-point dial-up telephone links to transmit messages to remote sites, but because the handling of each message was slow and laborious, a stand-alone, message-switching E-mail system was installed.

This first implementation failed. The switch was unreliable, the project was handled by nontechnical personnel rather than the information systems department, and conflicts arose between the subsidiaries and internal departments.

The second attempt, which was overseen by IS personnel, was successful. Using accepted methodologies for the acquisition of computer systems, a new E-mail switching computer was purchased. The organizational policies were also addressed through negotiations.

In the end, the firm saved nearly \$500,000 per year over the next five years through the use of the new E-mail technology. — *Jedie Naze*

"Who needs a CIO?"

By Robert D. Boyle and John J. Burbridge Jr.

Information Strategy:
The Executive's Journal
Summer 1991

■ Not every company should feel compelled to run out and hire a chief information officer. The decision to have a CIO rests on whether the gathering, processing and presentation of information is of strategic importance to the company.

The authors developed a 16-item questionnaire to help executives figure out whether to appoint a CIO. It addresses such issues as whether the firm needs a common IS architecture and standards; whether the firm is plagued by information or technology overload; and whether the chief executive officer is comfortable dealing with IS issues.

For the CIO to be successful, the corporate culture must include a supportive CEO and support for innovative technology applications. Successful CIOs must also have enough personal charisma to win the support of the constituencies affected. — *Miché Bets*

"Organizational Implications of Expert Systems"

By Louis E. Rahn, Ph.D.,
David Drehmer, Ph.D., and
James Beloblah, Ph.D.

Information Executive
Summer 1991

■ Expert systems are drawing a lot of attention lately. Reports about Du Pont

Co. spending \$25,000 to build an expert system promising an initial \$100,000 payback and other success stories make these systems very tantalizing.

But aside from the highly publicized examples of expert systems success, stories about companies implementing these systems are sporadic at best, the authors said.

The reasons are twofold. First, many firms that are using systems to gain competitive advantage are hard pressed to share that knowledge with their competitors. Second, there isn't that many stories. Expert systems make up a rather small portion of IS technology.

A study of 505 top managers and functional managers from the Data Processing Management Association mem-

bership discovered that internal reasons tend to drive the expert systems acquisition process.

Specifically, the following results were found:

- Companies adopt expert systems to gain consistency of decisions, reduce the time it takes to make decisions and provide a broader distribution of scarce resources.
- Firms interested in expert systems said the operations and IS functions were likely to derive the greatest value from expert systems deployment. Human resources and accounting were seen as having less of a need for expert systems.
- Expert systems are perceived as tools that will free managers from the routine aspects of their jobs. — *Alan J. Ryan*

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CALENDAR

NOV. 24-30

Advanced Manufacturing Research's 9th Annual Executive Conference. Cambridge, Mass. Nov. 25-26 — Contact: Advanced Manufacturing Research, Cambridge, Mass. (617) 851-1700.

Reggie Conference. Brussels, Nov. 25-29 — Contact: Expert Conference Secretariat Committee of the European Commission, Brussels, Belgium (32 2) 336-3163.

DEC 1-7

The Data Warehouse Design and Implementation. Orlando, Fla. Dec. 2-3 — Contact: Bennett Data Systems, Rockville, Md. (301) 762-1288.

Image World. Miami, Dec. 3-4 — Contact: Knowledge Industry Publications, Inc., White Plains, N.Y. (914) 338-9003.

The Outsourcing Conference. Boston, Dec. 3-4 — Contact: Digital Consulting, Inc., Andover, Mass. (508) 470-3880.

Technology 3001. San Jose, Calif. Dec. 3-4 — Contact: Technology Initiative Foundation, New York, N.Y. (212) 490-3099.

Cisco '91. Anaheim, Calif. Dec. 3-4 — Contact: Cisco, Boulder, Colo. (303) 449-4330.

A/E/C Systems. Toronto, Dec. 4-5 — Contact: Kelly Benter, A/E/C Systems, Chadds Ford, Pa. (610) 444-9583.

Data Concepts '91. Boulder, Colo. Dec. 5-6 — Contact: Data Storage Concepts, Boulder, Colo. (303) 444-4846.

DEC 8-15

Recurrent Image Automation. Washington, D.C. Dec. 8-11 — Contact: Modular Conference Management, Newport, Conn. (203) 335-6997.

Network '91. Washington, D.C. Dec. 9-12 — Contact: Technology Transfer Institute, Santa Monica, Calif. (310) 394-4300.

Computer Measurement Group (CMG) International Conference. Nashville, Dec. 9-13 — Contact: CMG, Chicago, Ill. (312) 527-4662.

PC Windows Exposition and Conference. San Francisco, Dec. 10-11 — Contact: PC Windows Exposition and Conference, Framingham, Mass. (508) 879-6700.

The Electronic Data Interchange Association's 23rd Annual 88 Users Conference & Exhibit. San Diego, Dec. 10-12 — Contact: EDIA, Alexandria, Va. (703) 592-8942.

Software Quality Management. Chicago, Dec. 10-12 — Contact: Technology Transfer Institute, Santa Monica, Calif. (310) 394-4300.

Beta '91. Miami Beach, Dec. 10-12 — Contact: International Software, Inc., Washington, D.C. (202) 382-2877.

Storage Fall '91. Anaheim, Calif. Dec. 11 — Contact: 32nd Perseus Exposition, Boston, Mass. (617) 232-2874.

First International Highways Conference and Exhibition. Santa Clara, Calif. Dec. 11-12 — Contact: Murray Dumas, Information Associates, Inc., Menlo Park, Calif. (415) 323-0347.

Headlines Through Performance. Orlando, Fla. Dec. 11-13 — Contact: Bennett Data Systems, Rockville, Md. (301) 762-1288.

Manufacturing Conference. Arlington, Va. Dec. 13-14 — Contact: Herb Schwabach, Austin, Texas (512) 336-3428.

JAN. 12-18

Pacific Telecommunications Conference. Honolulu, Jan. 12-13 — Contact: Pacific Telecommunications Council, Honolulu, Hawaii (808) 941-5785.

The 14th Annual A/E & Infrastructure Conference. Anaheim, Calif. Jan. 13-16 — Contact: Miller Perseus Exposition, Boston, Mass. (617) 232-2874.

Scientific and Engineering Applications of the Mainframe. San Francisco, Jan. 15-17 — Contact: MacArthur, Worcester, Mass. (508) 755-1344.

JAN. 19-25

Software '92. San Francisco, Jan. 22-24 — Contact: Bob Laker, Professional Exposition Management Co., Carol Stream, Ill. (708) 360-9700.

JAN. 26-FEB. 1

The AS/400 Help Systems Operations Automation User Conference. Orlando, Fla. Jan. 27-30 — Contact: Help Systems, Inc., Minneapolis, Minn. (612) 955-0669.

Improving Productivity in Systems Development. Phoenix, Jan. 27-31 — Contact: Applied Computer Research, Inc., Phoenix, Ariz. (602) 955-5509.

Connect '92. Washington, D.C. Jan. 27-31 — Contact: Rachel Warril, World Expo Corp., Framingham, Mass. (508) 872-4750.

Windows & OS/2 Conference. San Jose, Calif. Jan. 28-30 — Contact: Steve Pelt, CM Systems, Inc., Emeryville, Calif. (510) 661-5000.

Infonet. Las Vegas, Jan. 28-30 — Contact: Infonet Publishing, Inc., Capistrano Beach, Calif. (714) 492-2424.

13th Annual Florida Educational Technology Conference. Tampa, Fla. Jan. 28-31 — Contact: Barbara Ann Cox, Office of Educational Technology (904) 488-0900.

FEB. 2-8

Information Management Conference. New York, Feb. 4-6 — Contact: The Conference Board Registrar, New York, N.Y. (212) 339-0296.

FEB. 9-15

Network '92. Boston, Feb. 11-13 — Contact: Anne Z. Scully, Bruce Maclean Associates, Englewood Cliffs, N.J. (201) 996-8043.

Design. Calgary, Alberta, Feb. 11-13 — Contact: Miller Perseus Exposition, Boston, Mass. (617) 232-2874.

FEB. 16-22

Information Security Managers Symposium. San Diego, Feb. 16-19 — Contact: Perseus Research, 805 Training Institute, Framingham, Mass. (508) 879-7799.

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COMMENTARY

Les Gilliam

Surviving a revolution



The typing pool is gone. So is the multitude of telephone operators. And soon to follow will be the huge staff of programmer/analysts in a central IS group.

Almost anyone can pinpoint when the revolution started. It was, of course, the announcement of the PC. But along with the PC has come packaged software and new applications development tools, which have started the user on the road to independence.

Now with workstations and servers of amazing speed and storage capacity, as well as seamless networks that can cross almost any boundary, the distribution of IS functions into the hands of the end users cannot be slowed.

But does this revolution spell the demise of IS? Certainly not in our lifetime. Most companies' massive investment in customized applications has them tied to the mainframe for a long, long time.

Cobol may be fading away in terms of new applications, but the modification and enhancement of all those operational applications will be going on for many years. And must agree that a central group responsible for the corporate network and for interdepartmental resources will still be required.

The major challenge facing IS during this restructuring process is to continuously redefine its role in the company. Major conflicts abound in corporate America today because there is not a clear understanding among IS, its users and senior management as to how IS is to conduct its business.

The users want to be looked at as customers of IS who can demand quality products and services commensurate with their chargeback fees. Also, users are demanding the right to choose whether to even use their companies' own internal IS services. They can develop their own applications or purchase services from outside vendors.

IS is now recognizing users' ability to chart their own destinies. However, in most cases, the users will still be in need of certain central support and co-ordination services, including the aforementioned network and corporate databases.

IS prefers to see its role with users as teammates. By forming

a cooperative and mutually supportive team, IS and users can provide for all of the company's information and computational needs.

However, senior management continues to be suspicious of IS and its historic budget increases — caused by user demands and new automation opportunities. With computing expenses in the user camp now on an exponential rise, senior management is turning to IS to be the watchdog over corporate computer cost outlays.

There are two big problems with this watchdog assignment: Users don't accept the arrangement, and IS doesn't have the authority to carry out the role.

It is time for senior management to stop abdicating its responsibility concerning the acquisition and application of computing technology in the company. How many times have you heard that same old excuse in the executive offices or the boardroom that they don't understand computers?

By that logic, if they also don't understand the intricacies of accounting, don't bring in a balance sheet or profit-and-loss statement. Or because they are not engineers, don't dare display any blueprints or drawings in their presence.

There have to be some rules established by someone if a balance sheet or profit-and-loss statement is ever going to be resolved to the satisfaction of all three parties. It is up to senior management to manage, to set the policies by which IS and users can best perform their respective responsibilities in a harmonious and mutually supportive manner.

The revolution will also have a major impact on the careers of computer scientists and management information specialists. The transfer of these types of employees out to the user groups is now occurring in staggering waves throughout the country.

Many of the IS professionals being moved to operations or service departments are concerned about becoming second-class citizens. Will there be a level playing field regarding their opportunities for advancement, or will their career ladder have fewer rungs than theirs in the organization?

And what about those IS employees for which there is no position available in IS or the user group? Being put on the street at an advanced age with a skill in decreasing demand does not paint an attractive picture.

Change is often painful and messy. Users have been telling IS that for years. Now it is the IS profession's turn to experience the impact of a revolution.

Gilliam is president of Gilliam Associates, a computer management consulting firm based in Peoria City, Ohio.

CIO challenge: Managing EDS

Freeport-McMoran's Arnold will oversee outsourced IS operation

BY CLINTON WILDER
OF MIAMI

NEW ORLEANS — Michael J. Arnold might be the smallest staff of anyone in the world holding the chief information officer title, but that does not mean he lacks a business challenge.

Arnold, the new vice president and CIO at \$1.6 billion Freeport-McMoran, Inc. (FCM, Nov. 4), heads an information systems department consisting of exactly five people. Since 1988, Freeport-McMoran has had virtually all of its IS function handled by Electronic Data Systems Corp.

So why did the oil and mining company feel it needed a CIO-level position? Because it recently struck gold — and copper and sulfur, too.

Systems strategy

Discoveries of major ore deposits — copper and gold in Indonesia and sulfur off the Gulf Coast here — led Freeport-McMoran to set up new subsidiaries in both places, each with major new systems requirements.

"Software development and telecommunications were important facets before," Arnold said, "but there is a great deal more strategy and planning involved now that there are such major new assets in the corporate base."

The choice of Arnold may be seen as an ironic one because he has spent his entire career with EDS competitor Andersen Consulting. But even though EDS

and Andersen may be competing fiercely for outsourcing contracts elsewhere, they have always had a fairly cooperative relationship at Freeport-McMoran.

Andersen has been hired for specific systems development projects, many of which Arnold has been involved with since 1978.

Arnold said his 15-year career at Andersen should be a good fit in a job working closely with EDS.

Arnold takes up a major percentage of the workload. "So many things in IS are project-oriented in nature, and that's where EDS comes from," he said. "We've both done things in that mode separately before."

Arnold, an Andersen partner, joined the consulting firm (then Arthur Andersen & Co.) right after earning his MBA from Louisiana State University in 1976. He worked closely with Freeport-McMoran on several development projects in the late 1970s and early 1980s, including a complete overhaul of corporate financial applications and the development of new tax systems. Arnold began work in Andersen's office here, then later moved to the Dallas office.

Andersen's work at Freeport-McMoran has been more limited since the EDS deal began in 1988, but it did include work

on a tax system to support a master limited partnership set up by Freeport-McMoran.

EDS not exclusive

Freeport-McMoran will continue to look to Andersen and other systems development vendors as needs arise, Arnold said.

"When new requirements come up, we will look to EDS first, but we have the freedom to put those kinds of projects out for bid," he said. "EDS has shown they can be very flexible in working with us."

Arnold said his single biggest challenge will be supporting the new business lines — a significance underscored by the company's dispatch of its director of MIS, Ron Landry, to Indonesia to coordinate technology support there. "Our largest single operating unit is in the jungles of Indonesia," Arnold pointed out. "We need new technology to manage our operations out there, while continuing to manage the existing systems on a cost-effective basis."

Freeport-McMoran, a *Computerworld* Premier 100 company in 1989 and 1990, has a 10-year contract with EDS through 1993. "In many ways, it's nice to have the function outsourced and allow us to focus on the strategy and management issues," Arnold said.



Arnold is from Andersen Consulting.

Insurer keeps the old with the new

CONTINUED FROM PAGE 67

The second effort is the adoption of some cooperative processing as computing architecture. Delaney says IS is exploring which applications are best suited for processing that would be shared by mainframes and desktop computers.

"We are still waiting for a good system that would allow us to maintain integrity of the data between the databases," Delaney says.

However, even with this architecture, the company will keep some of its major database functions as a centralized, corporate function. Each of the three business units has a master database, and Delaney says it is critical to keep those at the corporate level.

"We will still operate with our corporate databases, but we will have the workstation initiate the dialogue and validate the information," Delaney says. "The mainframe will be there as a

huge file server, manipulating data for the workstation."

These steps are big changes for Principal Financial, which prefers a more cautious approach to undergoing any drastic changes, Delaney says.

"The style of the company is

PROJECT TEAMS are now set up with a mix of IS and nontechnical staff members.

to evolve, rather than jump in head first," Delaney says.

As for Delaney, much of his time is devoted to working with business unit managers to make sure both groups' strategies are aligned.

"Business plans tend to be more general," he says. "The is-

suess is the requirement to have a formal business plan down to the level that you need so that the IS strategy fits with it."

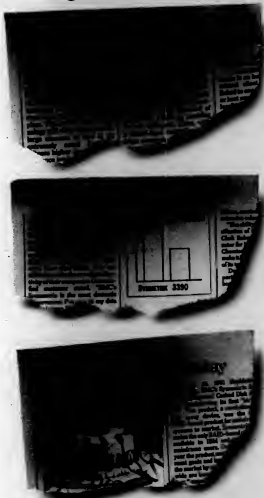
Currently, he is working to ensure the strategy shifts are accepted and understood by senior business management.

"If we're not in a crisis mode, then tend to wait to evolve rather than be revolutionary," Delaney says. "As an IS manager, I spend a great deal of time trying to manage that change process."

What he doesn't want to do is just react to what is hot in the industry. He said there is always a "go" computing method, but the goal should be to blend the new computing approaches that make sense with the older ones that still work well.

"The industry has been decentralizing or centralizing since I got here in 1955," he said. "We have constantly watched that and tried to decide what is really right for us."

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EXECUTIVE REPORT

HELP DESKS

'Hello, help desk? HELP!'

Bigger and better-equipped help desks are catching on with companies trying to get their money's worth from technology



Scott Paper's Lessor says his help desk tracks users' struggles with systems and programs, helps identify where training is needed

BY JULIA KING

In 1989, workers at Liberty Mutual Insurance Group had an estimated \$8,000 worth of personal computer and related technology placed on their desks as part of the company's multimillion-dollar transition to distributed computing.

Despite the high dollar investment, however, users had only about a 50-50 chance of getting their hardware and software questions answered, according to George Lees, the senior manager who heads up the Boston-based insurer's 12-year-old help desk. Even during installation, the six network control technicians handling questions were swamped with calls about everything from replacing toner cartridges for laser printers to updating mission-critical business applications. Half the time, the calls weren't answered, Lees says.

"We went from dumb terminals to installing several thousand PCs in just a few months," he says. "Deciding to get a help desk was almost a no-brainer. It was the only way to ensure that the

company got the true value out of its investment."

Liberty Mutual is just one of the growing number of companies that are formally establishing, enlarging or revitalizing help desks, often after learning the hard way that unless new technology is supported, users will more often than not ignore it.

According to a 1991 survey by the Help Desk Institute in Colorado Springs, more than 75% of 1,200 member companies polled expect to expand their current help desk operations over the next five years by increasing staff or expanding operating hours. Attendance at the institute's most recent conference was up 25% over last year.

There are several reasons for rising interest, consultants say:

- Need for improved user productivity. Among the biggest reasons is the need to get full value from facilities and information technology and to boost user productivity.

"Companies have come to realize they are paying big money for technology that isn't being used," says Glen Weadock, president of Independent Software, Inc., a help desk consultancy in Golden, Colo.

As a result, consultants say, many organizations are beginning to believe that keeping their own employees happy through internal help desks is as important as keeping outside customers happy—and in some cases, more so.

In terms of productivity, Weadock and others say help desks are being set up to ensure that all users have the support necessary to effectively employ the complex PC, software and networking technologies they use to do their jobs.

An important side benefit is that rapid response and productivity-boosting help improves relationships with end users.

- Need to free up valuable IS staffers. By routing routine inquiries to trained help desk personnel, many companies are hoping to free up valuable IS employees for more important tasks.

- Long-term improvements. Another hoped-for benefit is that data gathered from help desks could provide valuable insights into systems problems. For example, the number and nature of calls can help IS decide whether it is more desirable to repair or replace a troublesome computer system.

The long-term value of help desks is in identifying ways in which the end-user computing environment can be improved," Weadock says.

Finally, some observers also cite IBM's new Corporate Service Agreement maintenance packs as another reason for the rising interest in help

Continued on page 74



Help Desks

KEY POINTS

- ▶ Rising interest in help desks has several causes: need for improved user productivity, desire to free up valuable IS staffers, long-term improvements and IBM's new Corporate Service Agreement maintenance packs.

- ▶ A host of new technologies, notably expert-based systems and voice response, are also driving help desk automation (see story page 80).

- ▶ More than 75% of the Help Desk Institute's 1,200 member firms expect to expand their current help desk operations over the next five years.

- ▶ Consolidation of help desks is an important trend. The Royal Bank of Canada in Toronto recently consolidated 25 desks into three centers.

- ▶ The IS role in help desks is evolving, but conflicts about responsibilities and purposes are still common. Experts say the solution is to establish clear duties.

▶ QUOTABLE:

"Companies have come to realize they are paying big money for technology that isn't being used."

Glen Weadock
Independent Software, Inc.

King is a free-lance technology writer in Ridley Park, Pa.

How leading firms lend a little help

Charles Schwab Corp. in San Francisco has outsourced personal computer support for its 2,000 users in 120 offices around the country. The nation's largest discount brokerage firm has contracted with Computer Hand Holding, a San Francisco consultancy, to provide hands-on technical support. The contract requires the firm to handle Schwab's first-line telephone support, identify problems and make house calls when needed. The consultancy also routes calls to IBM, which handles hardware maintenance. Company officials say benefits so far include better productivity, elimination of 24-hour waiting periods for callbacks and the equivalent of \$150,000 in staff savings.

Sears, Roebuck and Co. in Chicago has installed a new help desk system aimed at providing faster and more uniform credit approval. Company officials say 55 million accounts and 175 million annual transactions severely taxed an old Cobol system. Half of all calls had to be referred for final approval. Sears says it expects the system to provide \$1 million in annual cost savings and an increase, to 30% or 40%, in the number of applications that can be answered immediately.

The UK Department of Social Services recently completed a large help desk project that unites some 28,000 workers in 500 local offices to a single, centralized help desk. More than 100 "problem managers" stand by to answer questions and provide technical support. Andersen Consulting in Chicago directed the project at the department, which runs what it claims is the largest Open Systems interconnect network in the world.



The John Harbort Co., the nation's second largest printer of checks, has replaced the paper flow of operator incidence reports. The 6,000-employee company, located in Decatur, Ga., opted for the Keys automated

help desk management software from Software Engineering of America in Lake Success, N.Y. Company officials say the active support center staff and 140 operations programmers have access to the Keys database. Callers with problems receive an identification number. If no answer is given in one hour, the caller can access the Keys database and check on its status. The overall result is fewer calls to distract operations programmers, company officials say. Plans are under way to expand the system to automated change administration and job scheduling.

JC Penney Co. replaced an older expert system to help reduce customer support phone time and better utilize staffers handling 750,000 store hot line calls a year. The nation's fourth largest retailer installed Apsort help desk software from Answer Computer, Inc. on a Sun Microsystems, Inc. 470 server on a 50-year IBM Token Ring network. The company says the percentage of problems solved on the first call has risen to 66% — and as high as 98% in some areas. Overall, problem-solving efficiency increased by 24%, according to Gerry Monday, manager of corporate systems services.

3M Co. in St. Paul, Minn., has implemented a computerized document management system in its product information center. The diversified manufacturer hopes to provide improved response to customer queries about the company's more than 194,000 products. Company officials say the full-text and image system has not only boosted customer satisfaction but also helped interdepartmental information sharing.

C&S/Sevens Bank — a \$50 billion financial institution serving customers between Washington, D.C., and Florida — installed PC-based software to dovetail its help desk operation from an IBM mainframe to OS/2-based PCs on a LAN Server Token Ring network. Support personnel logging and tracking problems from 13,000 PC users now use Central software from Workgroup Systems Ltd. in the UK and Corporate Software, Inc. in Canton, Mass.

Revitalized help desks catching on

Continued from page 73
desks. These agreements are aimed at lowering customer maintenance costs by centralizing problem reporting.

Around the clock

The least sophisticated help desks may be little more than technical switchboards whose operators are charged with referring users to technology experts.

At leading-edge organizations, however, help desks have evolved into around-the-clock operations centers charged with meeting present service levels. Their staffs comprise a new breed of specialists with both IS and customer service training (see story page 78).

The typical help desk has four full-time staffers, operates from 9 a.m. to 5 p.m. and

IS department to reorganize its help desk operations, says Patricia Leachwood, who manages the bank's Toronto help desk.

One call help call

Royal Bank's revamp reflects an important emerging trend toward centralized help centers, where "one call does it all," do with networks or with applications software.

In this instance, 25 separate help desks were merged into three main help centers, with analysts organized into hardware, software, banking applications and networking help teams.

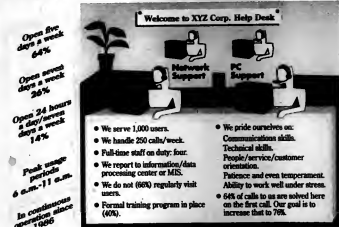
Under this arrangement, the bank's 45,000 users, depending on location, dial a single tele-

help desks cannot answer all user queries 100% of the time, however. At most companies, these desks are regarded as the source of what managers call Level 1 support. If help desk analysts cannot answer a question fully, Level 2 support, or area experts, may be called in.

Desks request help

What's significant in these situations, consultants say, is that help desk staffers — not users — contact these experts. In the past, help desk generalists have functioned on an ad hoc basis as "infinite help desks," according to Ronald J. Mann, chairman of the Help Desk Institute. As a result, many were "sick of getting" the phone calls that nobody else

Inside the typical help desk



Source: Help Desk Institute's Survey of Member Practices, 1989-1991, a study of 271 sites.

CH Chart: Jonell Gorman

serves 500 to 1,000 internal users, according to the Help Desk Institute (see chart above).

Managers agree that justifying a help desk is a fairly straightforward process, primarily because users' support requirements and the productivity payoffs that help desks yield are so obvious.

"Help desks just grow like Topsy to fill a need," says Sharon Sprague, programming analyst for help desk support at Prudential Property and Casualty Insurance Co. in Hightstown, N.J. "On average, we have 1,200 people on our system. When they can't use the system, they are unproductive," she says.

"Most managers recognize early on the benefit of having something there that can solve users' problems in a few minutes," Leach adds.

This realization was especially evident at the Royal Bank of Canada, where upper management actually commissioned the

phone number to reach a service response unit that, in turn, immediately routes their calls to the appropriate help desk analyst in less than 90 seconds.

Scott Paper Co. is another organization that has consolidated facilities. Four years ago, the firm had seven help desks supporting 7,500 users at 381 locations. Today, a single, centralized help desk at its corporate headquarters in Philadelphia fields 3,000 calls per month, providing answers to users' questions about the 900 IS products and services in use at the firm.

"Consolidating help desk operations offers the greatest efficiencies because a single automated problem tracking system can be used by everybody," says Bill Rose, president of Customerline, Inc., a help desk consulting firm based in San Diego. As added benefit, he says, is that training and information sharing among help desk analysts can take place informally.

Even mega-size centralized

wanted or would take."

Besides furnishing users with real-time diagnoses and solutions to problems, many of today's help desks also capture and systematically track data on problem frequency and the degree of users' difficulties. The proliferation of automated problem-management and call-tracking tools has made this process easier, managers say (see story page 80). Moreover, IS managers say the information collected also helps them make better business decisions.

To train or not to train

At Scott Paper, for instance, help desk analysts have been instrumental in identifying where and when user training programs are necessary, according to Sharon Laurvald, manager of IS support services.

Rather than track what is broken, Laurvald says, her help desk team follows "the level of struggle users are having with a particular product or service." In

doing so, the help desk is able to isolate problems to a specific system or program or to users in a particular department, then recommend where training dollars would be best spent.

During the past four years, Laurrell estimates, 50% or more of all incoming calls to the help desk have related to capability issues rather than technical problems.

For instance, a caller may say a printer is broken. But often, she says, the printer isn't plugged in or hasn't been issued the proper commands.

Problem-tracking improved

Using similar problem-tracking methods, the help desk at TW Services, Inc. — the largest franchisee of Hardee's Restaurants and the owner of Denny's, Inc., Quincy's Family Steak House, the El Pollo Loco restaurant chain and Canteen Corp., a contract food service company — has been able to identify and correct software coding errors downloaded to point-of-sale systems at its 1,800 retail outlets.

A HELP DESK IS "one of the best ways we have of taking the pulse of what is going on at the point-of-sale end of the business."

TOMMY HOLT
TW SERVICES, INC.

"Several times, we have been able to identify a software bug that has been released to the field after receiving several calls about the same problem," says David Hughes, manager of restaurant support services. "We're then able to fix it and download the correction before it affects everyone."

The company's IS manager, Tommy Holt, agrees, noting that a help desk is "one of the best ways we have of taking the pulse of what is going on at the point-of-sale end of the business. Our reason for existing is to enhance what they do."

In some instances, help desk managers get even more mileage out of problem-tracking by publicizing common questions or complaints and their solutions in company newsletters.

The key for help desks to be effective, managers emphasize, is to make users aware that help is available. To this end, Scott Paper circulates a PC facts and phone numbers list that details what users should do and what kinds of help they can expect.

"We try to be proactive by giving users Level 0 support," Laurrell says. "It's the level of support you need before you even call the hot line."

To advertise its help desk services, Liberty Mutual has arranged with hardware vendors to emboss the help desk phone number on mouse pads and other desktop equipment before it is shipped to field offices and other locations remote from the company's help desk center in Portsmouth, N.H.

Feedback is key

Royal Bank's Lethwood regularly solicits feedback from users by circulating surveys on the help desk's performance. Managers also measure their effectiveness by making random calls to users who

have contacted their hot lines.

Consultants and managers alike say help desks must constantly ask their customers how they are doing if they are to be effective. "Most organizations prefer not to ask rather than deal with negative feedback, but this kind of information is a very key ingredient of a good help desk," Costantino's Rice says.

At Scott Paper, for example, Laurrell says it was negative feedback that led to consolidation of help desk facilities. "When we had seven different help desks, we had feedback that customers had no idea what their problem was, so they didn't know which desk to call," she says. "We realized we were supporting the help desk from a technology rather than from a customer service point of view."

The IS role in help desks is still evolving. Though most help desks today report to an information center, a data processing center or an IS department, according to the Help Desk Institute, conflicts about responsibilities can arise. The solution is to map out clear responsibilities, the institute says.

Looking ahead, most managers say they expect to increase both the number of staffers and the kinds of automated equipment used at their help desks.

Some are already evaluating problem-management hardware and software with built-in expert systems modules. Consultants say the primary advantage these systems offer is to reduce potential vulnerability to loss of expert personnel.

"Eventually, if a help desk is doing its

job properly, it should work its way out of a job," Westback says. For now, however, as the complexity-per-dollar ratio of computer technology continues to rise, most organizations would do well to initiate and/or bolster help desk operations, he says. "It's the one sure way a company can make sure it is getting its money's worth from the systems it buys."

Many companies are lured by the potentially attractive payoffs. Consider that a four-person help desk can be set up for about \$50,000. In return, a \$20,000-per-year analyst fielding 16 calls a day can save up to eight hours of another IS staffer's valuable time.

Thus, productivity payoffs and early project completions could save nearly \$200,000 a year in this scenario. ■

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Help desk staff search hurt by low pay

BY JULIA KING

Want your help desk to succeed? Find good, patient people, give them technical training, and pay them a decent wage.

That's the advice of information systems managers and consultants for attracting and keeping help desk personnel. They note that the success of any help desk depends on the people who staff it.

Unfortunately, finding workers with the right combination of technical skills and interpersonal savvy remains tricky, they say. Worse, efforts are hampered by the low pay, lack of prestige and high

turnover that have plagued help desks.

"In the past, help desk staffers were often glorified message-takers, and their salaries reflected that," says Bill Rose, president of Customation, Inc., a help desk consultancy based in San Diego.

Or, he adds, "the help desk was... where you went if you did something wrong."

Today, the job is more substantive and demanding. An effective help desk analyst needs to understand mainframe hardware and software, all operating systems, all

subsystems, personal computers, applications and a company's business practices, according to Rose. But even though the nature of the job has changed, he says, help desks continue to suffer from a poor image, which hampers recruitment efforts.

While there are no precise figures for turnover of help desk personnel, most agree it is high.

Low wages have not helped. At many companies, it is not unusual for a help desk analyst to be among the lowest paid work-

ers in the IS group, earning about \$16,000 a year.

Thus, the challenge most companies now face, consultants say, is redefining the profile and salary structure of help desk workers to reflect the increased responsibilities that go along with the job.

According to Ronald J. Muna, chairman of the Help Desk Institute, a 1,200-member Colorado Springs association, companies are gradually recognizing the true value of skilled help desk personnel, and salaries are beginning to reflect this.

In 1991, for example, "first-level" help desk personnel—defined by the Help Desk Institute as those who answer the telephone and solve 50% or more of users' questions—will earn an average of \$25,857. Help desk managers earn an average of \$43,730 a year.

At Scott Paper Co. in Philadelphia, help desk workers and managers earn between \$30,000 and \$45,000, says Sheron Laurrell, manager of IS support services. Four years ago, she notes, the help desk leader was a programmer. Now, the position is held by an IS professional four levels above a programmer, Laurrell says.

At Liberty Mutual Insurance Group in Boston, George Leoni, the senior manager who heads up the company's help desk, pegs the average salary of help desk workers and managers at between \$28,000 and just under \$40,000.

Salary alone, however, does not guarantee that companies will attract the right person for the job. The ideal candidate described by most IS managers is technically well grounded, a quick learner and a strong team player who has the virtues of any dream employee: empathy, diplomacy, patience and flexibility.

At many companies, IS managers draw from their own ranks, filling help desk slots with junior programmers who are trained in customer service techniques.

At other companies, the philosophy seems to be that the best people to provide help are the same ones who at one time needed it. To this end, TW Services, Inc. staffs its restaurant support help desk with former fast-food restaurant managers, who are given technical training in-house.

Surprisingly, technical knowledge of ten does not top managers' lists of desirable skills. While computer know-how and skills can be taught, managers say, instilling "softer" human relations skills can be a lot tougher.

"It's very hard to train someone to be patient," says Patricia Lenthwood, who manages the help desk at The Royal Bank of Canada in Toronto. Thus, the bank finds people with this quality and provides in-house technical training, she says. ■

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Shrink-wrapped products may lighten work loads

BY LESLIE GOFF

For users who call a computer help desk with a question and have to wait in an on-worked programmer flips through pages in a manual to find the answer, downtime can be agonizing and exasperating. But if sheer numbers of products count, better days are coming.

Dosses of help desk packages — for nearly every major platform and operating system — have hit the market over the last couple of years.

Vendors claim this arsenal — which includes expert systems-based tools, automatic call distributors, case-based reasoning tools and voice-response units — will help hard-pressed computer support operators handle the growing number of calls better, while letting end users do more of their own problem-solving. In some cases, consultants say, that's true.

"Using the shrink-wrapped software is good when you have a strong commitment from management and you have the resources — staff, money and time — to put into it," says Matthew Cain, a senior analyst at Meta Group, Inc., which is based in Westport, Conn.

Goff is a New York-based free-lance writer.

However, because sophistication levels vary, Cain and others warn that companies may have to bite the bullet and continue shrink-wrapped software.

Prices vary widely, depending on hardware platform, operating system, network configuration and number of users. Packages start at about \$1,000 and can hit six figures. Bargains can be found, however. A personal computer-based shareware package called Hotnet sells for \$49.

Hotnet, which can track caller details and problems and can be used on a local-area network, is sold by Joey Robichaux in Baton Rouge, La.

Expert systems hot

Probably the hottest area in help desk technology today is expert systems-based tools and applications with relational databases.

"Expert systems and voice response are the areas where most companies are really investing," says Fred Schreengost, director of the Help Desk Institute.

A recent survey by the Institute found that 33% of the Help Desk Institute's member firms plan to buy expert systems-based tools over the next 18

months. Vendors claim that these tools can cut the time help desk representatives spend on each call, thanks to a "knowledge base" of common problems and solutions that can be retrieved with a couple of keystrokes.

They also maintain that these products can help companies shift support work from information systems professionals to technicians and customer service representatives or even end users.

Many firms have taken the plunge, including Metropolitan Life Insurance Co., Morgan Guaranty Trust Co. in New York and Wendy's Old Fashioned Hamburgers, Inc.

Du Pont Co. in Wilmington, Del., is using an expert systems-based software package called Target Hotline from Target Systems Corp. in Marlboro, Mass.

The PC-based product helps local help desks through the company get IS specialists out of the routine support loop, says Bill

Lamphugh, a senior consultant and project manager in Du Pont's IS group. "We used to choose a hot-seat person who would take all the calls on the hot line for a week. It was really a waste of resources," he recalls.

Now, Lamphugh says, most calls are handled by less-experienced help desk personnel and transferred, via Target, to a higher level specialist when necessary. Users can also dial into databases and search for their own solutions.

Du Pont developers also use the package to build databases of problems encountered during software design and development. Officials say this lets them find code defects even before the software is tested. Moreover, new problems and solutions are filed for later reference and for use in management reports. Revco Drugstore, Inc. in Twinsburg, Ohio, uses Netman, an expert systems-based package from Computer Associates International, Inc., to support users from 1,200 stores in 10 states.

"The software lets us see if a particular store keeps having a particular problem," says Angela Pagano, a help desk administrator. "Then we can resolve it either by providing more training or replacing a piece of equipment."

Problems remain

Despite success stories, users say there are still drawbacks to using smart help desk tools. Entertainment Publications, Inc. in Troy, Mich., an international distributor of discount coupon booklets for hotels, restaurants and other businesses, says it has experienced the limitations of store-bought help desk software.

The company uses Supportmagic 1.5 from Strategic Microsystems Corp. in Bound Brook, N.J., over a Novell, Inc. network to support 850 users in 120 offices worldwide, says Angela Semnick, the company's IS manager. Supportmagic is used by the eight-person help desk to log, prioritize and route problems.

However, Semnick says, a key Supportmagic expert system module called Magic Tree wouldn't let Semnick's staff add information to the solutions database. "It lacked editing capabilities," she says. "We had to draw a flow chart and start over whenever we wanted to change anything."

Troy Crouch, Entertainment Publications' network administrator, adds that

there have been problems with corrupted data files as well as incompatibility with Microsoft Corp.'s databases.

With necessary add-in modules priced at about \$2,000 each, Semnick says she is stuck. "I don't know what we'll do next."

Ready for new tools?

A next generation of help desk tools is already starting to appear. Industry analysts say general-purpose artificial intelligence shells are giving way to specialized diagnostic tools targeted at customer service applications.

Also gaining attention are so-called "case-based reasoning" tools, or CBRS. Vendors say these let help desk personnel create, access and maintain natural language databases of business examples, or cases, without developer involvement.

One measure of popularity is the following: Inference Co. in El Segundo, Calif., which claims to be the leading supplier of knowledge-based tools and services, earlier this year added CBR to its ART-IM systems development tool.

EXPERT SYSTEMS and voice response are the areas where most companies are really investing."

FRED SCHREENGOST
HELP DESK INSTITUTE

The Sabre Computer Services Division of American Airlines is among the CBR pioneers. Lynden Temmison, manager of knowledge systems at Sabre, says the firm is using a product called CBR Express 1.1 from Inference to develop a customer support help desk application.

Temmison says CBR Express will help American Airlines provide better customer service by enabling help desk representatives to deliver faster, more consistent responses. To date, users have developed hundreds of cases, he says.

Much of the mainstream activity right now is in voice and computer combinations. Voice response systems are available from numerous vendors, including AT&T, Digital Equipment Corp., IBM and smaller vendors such as VMX, Inc. in Anaheim, Calif. Prices start at \$15,000 and go up, depending on the complexity of the phone and computer network.

CA, for example, earlier this year introduced CA-DB:Expert/Voice 2.0, a voice response application development system for use with DEC's aDevoice.

At Entertainment Publications, end users worldwide calling after U.S. business hours get a voice response system that offers a menu of possible problem areas, such as in-house software, off-the-shelf software and telecommunications.

"Most of the time, they can get a resolution right then," Semnick says. "If they can't, the system will then beep a technician to take the user back."

Automatic call distributors are available from, among others, Corporate Network Operations, a strategic alliance of Hewlett-Packard Co. and Northern Telecom, Inc. based in Santa Clara, Calif.; AT&T Business Communications Systems in Bridgewater, N.J.; Electronic Information Systems, Inc. in Stamford, Conn.; and third-party vendors. •

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Bringing together internal and external help

Adventurous firms such as Martin Marietta support two audiences from one data center

BY JOHN WEBSTER

While more companies are finding that it makes sense to offer computer help to both internal users and external customers, an adventurous few are going the next step and consolidating the two.

That's the strategy used by Martin Marietta Corp., the aerospace and defense systems contractor based in Bethesda, Md.

"Internal and external support originated at pretty close to the same time — in the mid-1970s," explains Ron Moore, manager of customer service at the company's Orlando, Fla., data center.

Similar needs

Eventually, company officials realized that the service needs of inside and outside customers were very similar.

Today, Martin Marietta's Florida data center provides technical assistance to end users within the company as well as to commercial clients located around the world. Nearly all calls are directed to the Orlando center, and the help process is the same for internal and external callers.

The facility houses a telephone operations staff of 14 over three shifts. Staffers field between 1,200 and 1,500 calls a week from the company's 25,000 personal computer users, as well as its commercial customers.

Working on IBM PCs, compatibles and Apple Computer, Inc. Macintoshes, as well as 3070 terminals hooked up to an IBM 3090 Model 6000 and Amstel Corp. 1400 miniframes, support staff members can track problems at Martin Marietta sites using the company's Data Center Management Tools.

The custom on-line CICS problem-management software is tied into a DB2 relational database. Callers first reach an automatic call distribution menu, which directs calls based on the nature of the equipment, whether a caller needs week-end assistance and other criteria.

For example, if a customer has trouble communicating from his PC to a host sys-

tem, the help desk would suggest a series of tests to pinpoint the problem, explains Pam Morris, manager of customer support at Martin Marietta. Once the problem has been identified, the customer is referred to the teleprocessing area, which uses Martin Marietta's custom tracking software to diagnose trouble spots.

Martin Marietta has tried to cut data center support costs by automating as

much of the help desk as possible. In Atlanta, that facility, a 100-person staff handles between 4,000 and 5,000 calls per month from Computerland branches, as well as their corporate customers.

"Calls from the branches aren't general questions about computers but are more about compatibility, specifications, network hardware and software and determining what might be the right configuration for customers," says Al Andrus, senior vice president of service systems at Computerland.

"The external customer hot line runs the whole gamut from user application questions, LAN administration and general how-to issues. The help desk provides a single point of contact."

Pricing for the customer support depends on the coverage selected. Andrus says: \$35 per call and \$200 per year for application software coverage; \$70 per call and \$7,000 per year for network coverage; and \$200 per call for immediate on-line Help "until a problem is fixed."

While the purchase of Nynex Business Centers infused technical expertise and equipment into the Computerland operation, it also caused some headaches for those in charge of merging the support systems.

The biggest problem was converting the customer support facilities from a Banyan Systems, Inc. network, which Nynex used, to Computerland's Novell, Inc. network, says Eric Baury, staff director of technical support operations.

"We couldn't shut down the facility to migrate, so we had to duplicate everything in the multiple server Novell network while we converted," he explains.

As part of the conversion, Computerland added the Nynex Business Centers' Kyndex tool from Testware Corp. in Park City, Utah.

The post-Nynex technical support center has standardized on Microsoft Corp. Windows-based PCs, although some staff members use Macintoshes or Sun Microsystems, Inc. workstations. Call management is based on an IBM 3090 series with 3270 connections to PCs.

A laboratory facility lets technicians simulate customer problems. ■

Martin Marietta's Moore says the company has tried to cut data center costs by automating wherever possible.

much as possible, Moore explains. The company has installed Cool Systems International, Inc.'s OPS/MVS, which automatically generates and maintains computerized logs of calls, problems, customers, priority and other details.

While Martin Marietta will not disclose how much the consolidated help desk saves the company annually, Moore says that although there were previously 18 to 20 computer operations staffers supporting the help desk, or roughly six workers per shift, today there are generally two per shift.

Computerland consolidates

While Martin Marietta's data center staff has had to trim costs because of shrinking budgets, the customer support center at Pleasanton, Calif.-based Computerland Corp. got a big shot in the arm with its June purchase of Nynex Business Centers. As a result of the buyout, Computer-

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How to select the right automation tools

Here are tips for selecting support automation technology:

- Take a "before" picture. Measure the performance of your operation. This is necessary to calculate the impact of support automation technology and justify the expenditure.
- Become a salesperson internally. Management must be convinced of the need and value of a support automation technology in terms they will find important. Calculate the cost savings to convince the chief financial officer.
- Do a needs analysis. Don't assume you know how the help desk functions. Make a flow chart explaining every business process and how the data is accessed, collected and passed on at each step. Watch for steps and data that won't be required once the support automation technology is implemented. Outside consultants are good resources.
- Have a "systems strategy." This is a comprehensive

blueprint and timetable for an integrated approach to automating your operations. It must consider both the IS and the business plans for the entire company as well as your customers' expectations and, where applicable, competitive forces.

• Ask vendors for help. Vendors can be useful as you conduct a needs analysis and prepare your systems strategy. Later in the process, specific products can be measured against a request for proposal (RFP).

• Test your RFP. Try to answer it yourself before distributing it. This will help you make sure that your RFP actually asks for the information you need to collect.

KEITH TELLE

He is the director of systems and technology at Concord Project Management, a consulting firm specializing in customer support.

How long are your outside callers willing to wait?

BY GORDON F.
MACPHERSON JR.

It's 11 a.m. Your company's technical assistance phones are ringing off the hook. People want computerized answers. Now, how long will outside callers stay on the line before hanging

up and swearing to do business with your competitor?

Seven factors affect how long customers will wait for help from an external help desk. Knowing them is key for information systems managers and other help desk executives charged with planning service levels.

Moreover, by understanding tolerance levels in general and by analyzing how these seven factors affect their particular business, help desk managers can arm themselves with the ammunition needed to defend help desk budget requests.

• **Availability of substitutes:**

If callers can find help elsewhere, they won't wait as long.

• **Competition's service level:** This includes not only business competitors but also technological competitors, such as other phone numbers, fax lines and mail services.

• **Level of expectation:** If they

expect service to be slow, they will wait longer; if they expect it to be quick, they won't wait.

• **Motivation:** Self-interest makes callers willing to wait longer. The more they have to gain, the longer they will wait.

• **Time available:** How long can callers wait before being forced to abandon the phone because of time constraints?

• **Who's paying for the call:** If the caller is paying, tolerance levels for waiting are low.

• **Human behavior:** The mental state of the caller can be affected by weather, news, work pressures and so on. •

MacPherson is editor of "Service Level Newsletter" at the Incoming Calls Management Institute in Annapolis, Md.

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Help is available from several sources for IS managers seeking guidance on how to set up a help desk:

• **The Help Desk Institute** in Colorado Springs, a professional association for 1,200 midsize to large service organizations supporting computer end users (719) 531-5138.

• **The Software Support Professionals Association** in San Diego, a professional association for help desk managers and personnel (619) 674-4864.

• **"Service Level Newsletter,"** published by Incoming Calls Management Institute in Annapolis, Md. Subscription price: \$297 to \$337 per year (301) 267-0835.

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IN DEPTH

Getting technology you want and need

Cost-justification techniques that work. Read on . . .

BY TOM KOULOPOULOS

You know the scenario: You've researched a new technology that will streamline the flow of information through the enterprise, making your work group more productive. You've got a long list of potential benefits, but there's one problem: You have to get management to approve the purchase of this new, expensive technology.

While there are a lucky few for whom the purchase of a new technology requires only a rudimentary statement of benefits, most information systems managers are expected to justify expenditures. Before a new technology can enter the mainstream, a company must feel comfortable about its expense and the expected benefits.

Typically, costs and benefits are measured within the context of the existing business model. However, not all new technologies can be evaluated in this manner. Some have the potential to so dramatically change the way enterprises work that the old rules of measuring costs and benefits no longer apply (see story page 84).

The fundamental issue facing evaluators of today's new information technologies is how to evaluate the costs and benefits of a technology that has little or no precedent in the organization. The key is to find a good mix of traditional justification techniques related to costs of operations in the current business model and less tangible

techniques based on the business' goals.

With this analysis in hand, you can formulate a justification plan that satisfies the financial traditionalists and outlines the benefits of a new technology.

1 Justify by comparing the cost of existing systems with the cost of the new system.

One vivid way to justify new technologies is to compare their costs with that of the old technology or non-automated methods.

This comparison will provide hard-dollar figures needed for your cost-justification argument.

Before any comparison can occur, you need to be fully aware of your company's current technology infrastructure. It is helpful to build a map, using information from IS and

elements that do or don't work together, chasing you in to existing problems as well as areas of potential for new technology.

Because the map should present the organization as a series of business cycles, it will play a key role in justifying new technologies. From it you can identify which cycles are suffering the most, or you can consider how to improve or change the business cycle and support that change with the appropriate technology.

Across the map can reveal for comparison include the following:

- Extended or ill-defined business cycles. To justify technology in this case, you'll want to prove how automation can contract business cycles. For example, Digital Equipment Corp. was able to identify that its accounting function cycle took months and used that

knowledge as a justification for introducing electronic data interchange technology.

- Redundant areas. Redundancy in an information system means it either requires or fosters repetitive functions.

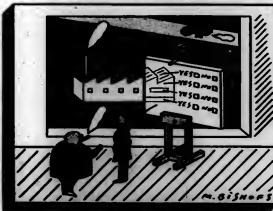
Redundancy prolongs a business cycle and makes it vulnerable to loss of integrity each time the information is reproduced. In this case, new technology justification would rest on proving that a system could streamline the process and improve productivity.

- Serial operations that should be parallel. Old technologies may limit the use of information

to one individual at a time, while multiple parties may need to work with it. Justification hinges on showing how technology can improve the process.

- Excessive maintenance costs. Every enterprise gets to the point where fixing and

Continued on page 84



Mark Steiner

Koulopolos is president of Delphi Consulting Group, Inc., a Boston consulting firm specializing in electronic document management.

users of the company's hardware, software and work flows.

This road map is important because it helps you understand how information currently gets from one point to the next in your organization. The blueprint will reveal those

ties may need to work with it. Justification hinges on showing how technology can improve the process.

Continued on page 84

- A company that uses a proactive approach
- How they do it at American Standard
- Five typical cost-justification mistakes

When it pays to spend money

Firm predicts it can make millions by listening to clients

BY LORY ZOTTELA

Align Bignall will tell you straight out that he's not fond of the term "cost justification." That's because this vice president of Financial Planning Systems, a business unit of personal financial planning company IDS Financial Services, thinks the phrase stands for a way of handling technology purchases that is arcane and counterproductive.

"The problem with cost justification," Bignall explains, "is that it is focused on saving money and avoiding costs." He approaches it more positively — to look at how technology can generate money and to spend only when there is a proven, significant, revenue-enhancing reason to do so.

The place to seek that information, according to Bignall, is within your client base. For IDS Financial, that base is made up not only of 1.5 million customers buying the company's financial services but also of financial planners that sell and support those services. He advises firms to start by identifying their business mission and asking clients repeatedly if it is being fulfilled.

If you assess client and

business needs in a rigorous, data-intensive way, the justification for new technologies will be there even before you decide what systems you need.

Ask the customers

To that end, Bignall and his staff recently sent out surveys to 400 of the 6,500 remotely located financial planners. The company also met in person with 16 groups of customers and a large number of planners for more in-depth discussions. It studied historical information such as client buying practices over a period of time.

Clients and planners were asked



Financial Planning's Bignall says he believes that surveying customers will lead to smart technology investments

Continued from page 83

updating the existing system becomes a burden to the work flow and to progress. Documented high maintenance costs of older systems can be a solid argument for buying new technology.

2 Justify by how well new technology fits with organizational goals.

Once you understand how things fit together and interact in your organization, you can assess the firm's business objectives, also known as its critical success factors: customer service, time to market, quality control and the like.

This involves identifying the specific measures the enterprise uses to assess its effectiveness and, as a result, how it gauges the technology's contribution to its success.

What do success criteria have to do with justification of new technologies? They can open the door to corporate support. If you want a good chance of justifying a technology, align it with the highest goals of your organization.

For example, a major automobile manufacturer had customer service as its critical success factor. It wanted its staff to resolve customer inquiries on the spot. By aligning its technology goals to the company's organizational success criteria, the IS department was able to successfully justify a document management system that incorporated the most current automotive product information with journal articles, reports of recalls, competitive products written by in-house experts and so on.

Tying technology to business objectives makes a good case for justification, no matter what the industry. Power com-

panies would likely look favorably on a new technology that has a track record of curtailing power outages, while a pharmaceutical firm might accept a system that quickens the pace of a drug's time to market by facilitating the time-consuming regulatory process.

It is important to remember that the key distinguishing characteristic of success criteria is that they be measurable. You must prove that a new technology will result in a day less of outage, quicker time to market with a new drug or increased quality. Management is going to want to hear about identifiable savings

whether IDS Financial was helping them meet their goals and using information and technology to their best advantage.

What the company found was that while those surveyed were generally happy with IDS Financial, there was room for improvement in the level of long-term service after an initial contact and sale. To improve that service, both clients and planners said they wanted technology involved to a greater extent.

Using a proprietary modeling technique (which he declines to discuss), Bignall figured the company was losing out on millions of dollars a year by not providing certain after-sale services to clients.

While Bignall acknowledges it's not likely the company will capture all that profit, having a figure in mind gives him an idea of what the company can realistically afford to invest in technology to gain a good chunk of that total.

"We won't spend the money unless we know there's a potential to make some."

Today, IDS Financial, which spent more than \$50 million on technology companywide last year, has projects in the works exploiting its existing personal computer network, which is tied into a central mainframe. The company is focusing efforts on client-management and client-activity tracking systems. To increase planner support capabilities, the company gave planners bet-

ter access through the network to product and client data residing on the mainframe.

The planners are now able to offer a more personal level of after-sale services, keeping tabs on whether client problems are being solved and notifying clients when the economy changes or decisions such as college payments warrant revising their accounts.

Bignall says rigorously gathering feedback from clients is not a onetime occurrence at the company but rather is ongoing and has become a part of business and information systems planning.

"We're not blowing money away on great ideas," he says. "We know we're going to make money because we're asking our clients what they want."



Four-year profit growth ... 17%

Assets under management ... \$61 billion

Financial planners ... 6,500

Home office staff ... 4,500

Client base ... 1.5 million

ter access through the network to product and client data residing on the mainframe. The planners are now able to offer a more personal level of after-sale services, keeping tabs on whether client problems are being solved and notifying clients when the economy changes or decisions such as college payments warrant revising their accounts.

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"We're not blowing money away on great ideas," he says. "We know we're going to make money because we're asking our clients what they want."

Editorial is Computerworld's senior editor, in depth.

Cost-justification errors to avoid

Michael Erbschloe, editor in chief of the "DP Budget" newsletter published by Computer Economics in Carlsbad, Calif., says the following are typical cost-justification mistakes:

- 1) **Exaggerating cost savings.** A classic area in which savings tend to nearly always be exaggerated is paper-saving automation. Double-digit savings are typically predicted; single-digit savings usually occur.
- 2) **Underestimating costs.** Too often, justifiers will not take into account costs throughout a project life cycle, including start-up, maintenance and human resources costs.
- 3) **Not factoring out hidden costs.** Things such as conversion costs can be overlooked and may crop up when you least expect them.
- 4) **Relying on false numbers.** Make sure you're working with the appropriate cost and benefit measures for a particular technology. Also, don't rely strictly on vendor numbers but do some independent research to back up vendor price/performance claims. Remember, management will hold you accountable, not the vendor.
- 5) **Letting end users cost-justify for you.** While it's important to give users the kind of technology they need, don't let them bully you into a technology you can't justify.

cess factors, saves money, collapses business cycles, reduces manpower, increases sales volume, increases incomes, processes more transactions, reduces turnaround times and so on.

Work closely with users after implementation to see how the work flow is changing as the system is being used. Are the initial expectations being met? Does the process need further refinement? Each situation will present its own set of benefits, which can be quantified and factored into future justifications.

4 Justify based on competitive disadvantage.

A final argument is based on the idea of competitive disadvantage. Because competitive advantage is so fleeting, it might be better to concentrate on proving the disadvantage, or opportunities lost as a result of not implementing a technology your competitors have. Not to be on a level playing field with major competitors could result in dire consequences indeed.

Be warned, however: The main impetus for the technology should be the company's business need, not keeping up with the Joneses.

Selling management on a new technology is a challenge that is certain to expend your understanding of the organization, its needs and its motivations. Often the process solidifies the initial commitment made to the new tool and lays important groundwork for much-needed organizational change.

Overall, going through a justification process challenges all involved to think beyond their four walls and understand what will make the enterprise function more efficiently and productively. ■

How American Standard decides investments

American Standard, Inc. is one company whose justification program has been successful, according to a Diebold Research Program report on evaluating information technology investments.

The use of performance measurements and investment strategies determined by both information systems and line management are a common theme in its story. The firm's strategy, which

Diebold studied from 1988 to 1990, is based on a complex portfolio approach (see chart below).

American Standard's approach to new technology justification holds a lesson for highly decentralized, large conglomerates with various applications and systems of different ages and with different missions. American Standard identifies its

priorities for investment by using four major steps.

The first step involves an examination of the general business strategy of the area being studied. After the general business strategy has been identified and confirmed, the components of that strategy are broken down into critical success factors such as instant customer service, for example.

Next, these success factors are broken down into performance characteristics or tests of the information system. These are system characteristics that must support the strategy.

The second step involves examination of the installed information technology investment.

The analyst compares the current pattern of expenditures and investments in the installed base with the critical success factors and the systems that support them.

Expenditure patterns and the overall architecture is examined with a multidimensional model that looks at different architectures and functional areas.

This comparison enables IS managers from several different areas to zero in on places in which investments might be made profitably.

The third step involves an examination of the current and proposed application portfolio according to three dimensions: cost and investment, technical quality and functional quality.

Cost figures are readily available because they are derived from the central budgeting process. Judged by IS professionals, technical quality involves both hardware and software quality. Functional quality is rated by users and line managers.

At this point, there is a critical link between IS and non-IS management in which both set priorities and communi-

cate their assessments of different information technology strategies.

The outcome of this process is identification of lower level investments that have both functional and technical merits. It also serves to disqualify many applications that either are technically inferior, are of little use to the user community or are taking more than their share of investment resources.

Based on the outcome of this analysis, the company can make preliminary decisions about whether to increase, decrease or maintain the levels of funding allocated to each of the specific applications under consideration.

In the fourth step, specific performance measurements are developed for each of the proposed winning applications.

These measurements concentrate on the justification criteria as well as on what will be required to continue assessing the investment over time.

The performance measures are specific and are closely related to the strategic goals and critical success factors of the business that have been identified in earlier steps.

For example, if it is important to reduce the turnaround time for product development, then that time is measured in relation to any coincident information technology investments.

In this way, the true business effect is likely measured instead of some highly specific information technology measurement, such as response time, and the company ensures that the link between IS performance and overall business performance is maintained through the evaluation system.

Excerpted from "Evaluating Information Technology Expenses and Investments: Summary of Findings" by The Diebold Research Program of The Diebold Group, Inc. in Bedford Hills, N.Y.



A sampling of justification methods

No one approach is going to be the magic elixir by which a company transforms its justification methods. The Diebold Research Program, during more than a decade of research, has found that justification and analysis approaches should vary according to circumstances, and information systems management must be prepared to be flexible in its approach.

Here is one classification of the different techniques possible:

► **Economic models.** The economic techniques — payback, return on investment, net present value and discounted cash flow — are primarily short-term and financially oriented measures for investment decision-making. They are aimed at building a cost model of the application and then comparing it with the estimated benefits it will bring the firm, with these benefits also measured in revenue.

Economic models, however, cannot address nonquantifiable or non-cost-related aspects of a project. They are best suited for equipment replacement projects and stand-alone applications.

► **Portfolio selection models.** These models were designed to examine the range of information technology applications currently being pursued by a firm, then comparing these against future possibilities judged by a range of soft criteria. These models are good for simplifying complex decisions but are

no substitute for hard-cost analyses. Their advantage is that they can aid you in choosing among competing projects on the basis of multiple criteria.

► **Analytical models.** These models use a variety of techniques to examine the general risk of a potential application in comparison with other options. Management consultant Peter Koen's value analysis model repeatedly analyzes the efficiency of an application based on careful measurement of a prototype installation before the resources are committed to full rollout.

Another analytical model, risk analysis, enables managers to take into consideration estimations of the potential risk of failure of a new application based on up-front analysis of it.

This approach should help in finding the best payoff against the least risk.

► **Strategic models.** These models first examine the grand strategy of the business, then trace it in greater levels of detail and specification what is needed to achieve that strategy. Both technical and managerial factors are taken into consideration, along with hard and soft benefits.

As they consider the application of new technology investment, these models examine such elusive concepts as strategic competitive advantage and the relationship with business objectives. This approach is best used when the application under consideration can be a key to success in the business.

You pick 'em

There are an ample number of justification methods to choose from

Portfolio	Analytic
<ul style="list-style-type: none"> ► Growth options ► Programming models ► Scoring models <p>Portfolio models weigh the different options available in the family of applications being used, including possible future benefits.</p>	<ul style="list-style-type: none"> ► Risk analysis ► Value analysis <p>Analytic techniques focus on highly specific factors, such as risk of application failure.</p>
Economic	Strategic
<ul style="list-style-type: none"> ► Cash flow ► Discounted cash flow ► Net present value ► Payback <p>The economic methods are the most fundamental and frequently used methods. They estimate the labor savings and then incorporate the value of money over time.</p>	<ul style="list-style-type: none"> ► Business objectives ► Competitive advantage ► Technical importance <p>Strategic methodologies are more innovative and allow the analyst to incorporate non-quantitative factors and other fuzzy data into an analysis of an investment decision.</p>

Source: The Diebold Group, Inc.

CF Chart: Michael Regier

Ada's Success in MIS: A Formula for Progress

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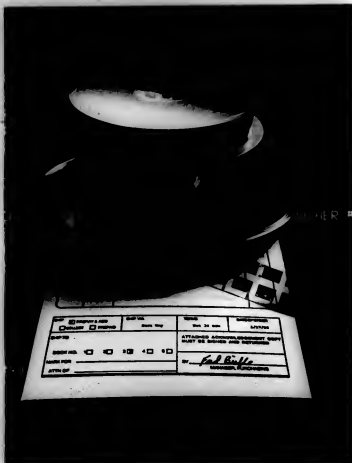
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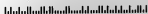
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COMPUTER INDUSTRY

NATIONAL BRIEFS

It isn't Adapco anymore

► Software industry organization Adapco is a diverse organization, but one is hard put to find among its members someone who can remember what its acronym stands for. Effective last week, the problem is moot. In an effort to better blame its mission of pan-industry representation, Adapco's name is changed to the Information Technology Association of America.

Out with a bang

► In one of its last acts under its old name, Adapco last week gave out the first three of its recently established annual Quality Awards. Livermore, Calif.-based Triad Systems and Framingham, Mass.-based Dun & Bradstreet Software carried home Adapco's Total Quality Award, bestowed for distinctive achievement in leadership, quality information and analysis, planning, quality of life and work for employees and ace customer satisfaction. The association's Documentation Training Materials award went to Hynitron, Mass.-based Software 2000.

More and more public

► IPO continues to be one of the most popular monograms in the computer industry this year. Among those about to launch an initial public offering is Vitesse Semiconductor Co. The Camarillo, Calif.-based gallium arsenide circuit designer expects its imminent offering of 3.2 million shares to be priced between \$8 and \$9 per share. Santa Monica, Calif.-based networking software firm Brite plans an IPO of 2.2 million shares, at an opening price anticipated to be between \$8.50 and \$10 per share.

Pentagon style

► The Ada Joint Program Office of the U.S. Department of Defense has picked the Software Productivity Consortium's Ada style guide as a standard for DOD use. Written by the Herndon, Va.-based consortium, "Ada Quality & Style: Guidelines for Professional Programmers," offers guidelines for developing code with high degrees of readability, portability and reusability. A spokesman for the consortium said the DOD endorsement will lead to greater use of the guide by the private sector as well.

A future that's footloose and wire-free

BY MICHAEL ALEXANDER
OF BIRN

Will "Reach out and touch anyone, anywhere, anytime" be the motto of a computer, networking, telecommunications and other companies before the end of the decade?

Looming on the horizon is a host of voice and data services called personal communications services (PCS) that will be aimed at an increasingly mobile work force, according to several experts. Exactly what voice and data services will be provided to consumers and business users is still a bit up in the air, but one thing is clear: The network tying them together will be wireless.

"We've become an increasingly mobile and communications-dependent society, requiring wireless connectivity," said Clifford Bean, director of the mobile telecommunications practice at Cambridge, Mass.-based market research and consulting firm Arthur D. Little, Inc.

Demand for wireless services is being stimulated by the grow-

ing popularity of cellular and cordless telephones, pocket pagers and laptop computers, Beans said.

BIS Strategic Decisions, a



Norwell, Mass., market research firm, estimated that about 25,000 mobile office operators already use cellular telephone links for data applications.

That number is expected to grow to 250,000 to 300,000 by 1995, said Richard Silber, associate director for the mobile communications service at BIS. Some analysts predicted there will be 150 million users of wireless networking services of all types worldwide by 2010.

The central concept underlying PCS is that each individual will have a personal telephone number, probably for life. Instead of telephoning a place, a caller could telephone a person, no matter where that person might be. An advanced intelligent network would know where to reach each person.

Subscribers would take their pocket-size telephones when they leave their homes in the morning, use them in their cars during their commute and dial through the company's wireless private branch exchange at the office. The network would discern between personal and business calls and bill accordingly.

PCS is about much more than just go-anywhere pocket telephones, however. AT&T, Hew-

lett-Packard Co., Apple Computer, Inc. and several other companies have visions of offering palmtop, notebook and pen-based computers as well as many other devices with built-in radio and modem functions.

Apple has filed a petition with the Federal Communications Commission asking that a portion of the radio spectrum be allocated to "data personal communications service" that would permit Apple and others to create a wireless local-area network for portable computers within 150 feet of a base transmitter.

Apple's proposal has garnered support from other major computer makers, including IBM, Tandem Corp. and NCR Corp.

"Today, data services are all location-dependent; the end user is forced to be at a specific location," said Jesse Russell, chief technical officer for cellular systems at AT&T Bell Laboratories in Whippany, N.J. "Advanced wireless systems will be location-independent computing."

Continued on page 30

EDS, MDSI in tow, eyes manufacturing advance

BY NELL MARGOLIS
OF BIRN

DALLAS — Electronic Data Systems (EDS) Corp. last week closed its August acquisition of CAD/CAM/CAE player McDonnell Douglas Systems International Co. (MDSI), putting into place the final piece of a two-year strategic buildup aimed at unleashing EDS as a major force in the manufacturing services arena.

The deal gives EDS a lock on MDSI's crown jewel, the Unigraphics computer-aided design and manufacturing (CAD/CAM) software line, forecast earlier this year by market research firm Datacube, Inc. to grow 15% to \$336 million by January. EDS also gets an architectural design and engineering package and a Cambridge, England-based no-lids and modeling research plant. Executives at the \$6.1 billion General Motors Corp. subsidiary declined to say what it paid for the \$398 million subsidiary of aerospace giant McDonnell Douglas Corp. But manufacturing and distribution services business unit President Hank Johnston left no doubt about

what the deal is worth to EDS.

"Quite frankly, not much ground remains to be covered" in EDS' move on the manufacturing market now that MDSI is in the fold, he said. The firm's goal, Johnston noted, has been to build an all-encompassing manufacturing services capability that would allow EDS to offer customers soup-to-nuts aid, whether by way of consulting, management or design (see chart).

Unigraphics had already been blessed as the tool of choice for General Motors' and EDS' "CA" automation project, through which the companies hope to standardize all GM design and manufacturing processes on a single specification system shared through a common electronic database. "We felt it was the superior 3-D CAD product around which to build all our services," Johnston said, "so we decided to just acquire it."

Blue-ribbon list

With it, EDS also acquired a blue-ribbon customer list: In addition to GM, major industrial firms including Pratt & Whitney, Dow Chemical Co., GTE, 3M Corp. and all of the Bell operat-

ing companies are currently Unigraphics users.

John Mansola, who headed up MDSI, will continue on the job, now as an EDS divisional vice president. "Better than 90%" of the firm's approximately 850 employees will be offered EDS positions, according to Johnston.

The new EDS Unigraphics division will remain based in St. Louis.

New relations

One of the juiest plants, however, could be the newly tightened relationship between EDS and its latest catch's former parent,

McDonnell Douglas. Since EDS first bid for MDSI, industry speculation has centered on the possibility of a major outsourcing deal between the world's leading outsourcing vendor and the financially beleaguered aerospace firm. Last week, neither EDS nor McDonnell Douglas would comment on whether such a deal is brewing. However, Johnston said, "One of the things we looked at very carefully was the different ways in which we could work with McDonnell Douglas. This is a firm we will feel very comfortable having a long-term relationship with."

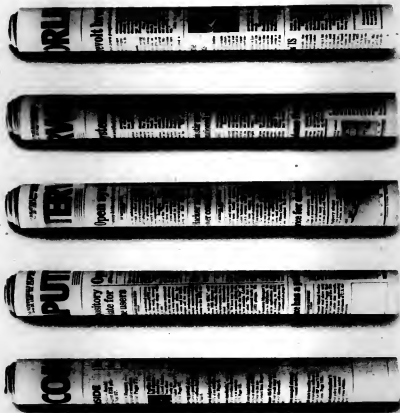
How to build manufacturing services client

EDS has spent the last two years offering and buying its way into a power position in the growing manufacturing market.

December 1989	EDS forms manufacturing services business unit.
March 1990	EDS partners with Thomson Corp. Inc. (TGI) to gain TGI expertise in reducing time needed for variety of manufacturing processes.
September 1990	EDS partners with Autodesk Computer Systems to jointly market manufacturing information systems to manufacturers.
September 1991	EDS partners with Comshare, developer of integrated plant design management software that commands 43% of market share.
October 1991	EDS gains 4.7% of \$10.5 billion per year CAD/CAM market with purchase of McDonnell Douglas Systems International.

Source: EDS

CV Chart: Michael Segner



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INTERNATIONAL
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► The European Commission has taken its first steps toward introducing European Community protection for industrial design — protection that could extend to every piece of equipment in the average office, according to a report last week in the French business press. "Industrial design is more important than any other intellectual protection mechanism," a commission official quoted in the report said. The only products he could think of that could not benefit, he said, were "crude steel and potatoes."

Nordic nexes

► Norway's financialy troubled Norsk Data A/S said its subsidiary, ND Partner, and Siemens/Nixdorf Informationssysteme AG's Norway unit plan to establish a new information technology firm with shared management. The company will pool Siemens/Nixdorf's activities in the Norwegian government, financial institutions and retail markets with ND Partner's customer base and software experience, all of which highlight Unix platform.

Delour to Europe

► U.S.-based software house Computer Associates International, Inc. is expected to announce any day its decision to suspend direct large client sales of its software products in Europe and revert to indirect channels. The move follows the U.S. Antitrust Commission's approval of the merger of CA with Panosonic Systems, Inc.

COMMENTARY

Nell Margolis

Beware the
TQ backlash

Hey, did you read the one about the company that won the Baldridge but may be about to lose its shirt — thanks in part to the time and money it spent pursuing the prestigious award? Or how about the tales of firms where swollen Baldridge-bent bureaucracies and budgets threaten day-to-day quality?

Japan financials show
shift to workstations

COMPUTERWORLD JAPAN

TOKYO — Financial results recently posted by all major Japanese computer manufacturers for the first half of 1991 point toward a gradual shift from larger mainframes to increasingly powerful lower end computers. On another front, overseas computer sales were almost uniformly down.

For Japan's largest computer makers, Fujitsu Ltd., NEC Corp. and Hitachi Ltd., all of which have traditionally depended on the mainframe market for revenue — the dominating trend has particular significance. Mainframe sales are still robust, with the Big Three still shipping large numbers of machines. However, quarterly results are also starting to show workstations taking a larger chunk of overall computer sales, pointing to a user predilection for lower end machines. Results from both Fujitsu and NEC confirm increasing sales of the companies' workstation lines.

Fujitsu, for instance, received orders for some 990 mainframes

during the first six months of the year, keeping orders at roughly the level logged for last year's corresponding period. But 3,400 workstations were ordered: an 80% year-to-year increase.

And at NEC, workstation orders zoomed up 300% to 7,900 units. The firm attributed this boom in large part to a massive 6,000-unit order from Daiwa Securities Co.

Fewer getting personal

Personal computers, however, are falling off somewhat, judging from the numbers for the first half of 1991. NEC, which by some estimates holds as much as 60% of the PC market in Japan, posted growth of only 11% this year, in sharp contrast to a 29% surge last year.

Some manufacturers, however — for instance, Toshiba Corp. — said they expect to see signs of a recovery in the last half of the year.

Toshiba and Mitsubishi Electric Corp., which specialize in office computers, and other Japanese refer to as "olcon," new solid revenue numbers in the year's first half, although To-

shiba has suffered in the year-to-year comparison. Olcons are defined as powerful, midrange computers for business applications.

For its part, Mitsubishi is now sourcing mainframes and workstations from outside companies and trying to integrate these machines into its product lineup. Generally, all computer vendors are targeting this business market for substantial growth.

While the three largest of Japan's computer vendors logged healthy year-to-year increases in domestic sales of computer products for the first six months of 1991, their overseas sales pictures were comparatively grim.

Fujitsu saw overseas computer sales for the six-month period rise 18.1% to \$804 million. NEC watched an even steeper slide, plummeting 26.9% to \$433 million.

Hitachi suffered similarly in overseas sales, posting a 13% drop to \$913.9 million for the year's first half.

Toshiba, the only one of the five leading Japanese contractors to see an overall decrease in computer sales, posted a 6% slide at home and a 2% drop abroad. Mitsubishi broke the pattern at the other end of the spectrum: Domestic computer sales climbed 7% to \$745.7 million, while overseas revenue shot up 19% to \$208 million.

Booming home front

Japanese firms see increases in workstation sales, decreases in overseas revenue

	Computer-related sales January-June 1991	Percent change from first half 1990	Domestic sales January-June 1991	Percent change from first half 1990
Fujitsu Ltd.	\$6.48	13.5%	\$5.68	26%
NEC Corp.	\$5.548	13.9%	\$5.118	19.6%
Hitachi Ltd.	\$4.838	12%	\$3.928	11%
Toshiba Corp.	\$1.988	(8%)	\$1.648	(6%)
Mitsubishi Electric Corp.	\$933.8M	10%	\$743.7M	7%

Percentages indicate loss.
Source: IDC News Service



Domestic sales January-June 1991

Percent change from first half 1990

Domestic sales January-June 1991

Percent change from first half 1990

Domestic sales January-June 1991

Percent change from first half 1990

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Domestic sales January-June 1991

Percent change from first half 1990

Domestic sales January-June 1991

Percent change from first half 1990

Acer profits
expected to
fall short

BY CHRIS BROWN
IDG NEWS SERVICE

TAIPEI — Acer, Inc., Taiwan's leading personal computer firm, has slashed its profit expectations for 1991 after posting a net loss of \$6.51 million for the first three quarters of the year.

Earlier this year, Acer predicted net profits of \$15.1 million for 1991. But late last

month, the company's board said it now hopes to just break even this year.

Analysts said Acer's woes stem from a weak U.S. computer market and a heavy debt load. In 1990, Acer relied on the U.S. and Canada for about 30% of its sales.

Analysts said Acer's new products, including portable computers, have yet to have a major effect on sales. "Notebook PCs are still a tough market, even for a major PC firm like Acer," said Vincent Kuo, manager of the Market Intelligence Center located here.

Acer has invested heavily in expansion during the past three years, purchasing its \$94 million outlay to purchase U.S.-based minicomputer company Altos Computer, Inc. in September 1990.

Brown is Taiwan correspondent for the IDG News Service.

not just smart, but about to change life itself. After this, nothing will ever be the same again. Then, about three months later, the witch-hunt begins.

And the backlash is more than a media reaction. It is richly earned by every firm that slips a TQ label on every action from training programs to mass layoffs, or races to hire TQ speakers and calls it quality.

Nevertheless, beyond the hype lies one critical fact: We need the benefits of TQ a lot more than we need to be rid of the excesses of the TQ movement.

Total quality in every aspect of the production and delivery of goods and services isn't a fad — it is an unalterable tenet of successful competition in a global free market. It isn't a good idea

without sounding goopy. Achieving quality takes daily work, without an immediately tangible, measurable reward: That makes it hard to talk about at all. Little wonder that the TQ movement has subsided in a blizzard of feel-good phrases the likes of which haven't been seen since Werner Erhard was running the bellwether bureau.

What's more, TQ seemed to invent modern mode virtually overnight — and once the movement arrives, can the backlash be far behind? One West Coast bank executive, speaking (read, decrying) on the outsourcing phenomenon at a banking technology seminar last week, summed up the way of all flash in the U.S.

Anything-mania, he said, involves two steps: "First, it's something that isn't good,

whose time has come — it is an indispensable idea whose time never left. What did leave was the dedication to quality: A concept mired in quality but never sufficiently brought here.

Possibly for the wrong reasons, probably with its share of ironic consequences, but certainly for the first time in all too many years, U.S. industry is obsessed with quality and quality, like bravery, is one of those things that's hard to completely fake. In maintaining the illusion, you run into the liability, whether you mean to or not.

So, sure, get out the slaphammer with it comes to Baldrige-mania, and ready, aim, fire. But shoot at the right target: Hit the media, not the message.

Margolis is Computerworld's senior editor, industry.

EXECUTIVE CORNER

Peterson tapped for NET board

All aboard: Redwood City, Calif.-based networking products vendor Network Equipment Technologies, Inc. late last month appointed DuWayne J. Peterson to its board of directors. Peterson, former executive vice president of operations/systems and telecommunications at Merrill Lynch & Co., currently heads up his own telecommunications consulting firm and also serves on a number of boards including that of the Massachusetts Institute of Technology and the National Association of Securities Dealers Automated Quotations, or NASDAQ.

Former Ashton-Tate Corp. Chairman and Chief Executive Officer Edward M. Eaker Jr. has accepted a position on the board of directors of Irvine, Calif.-based software development tools vendor Magic Software Enterprises, Inc. Meanwhile, Mitchell D. Kapor, Lotus Development Corp.'s founder, an On Technology, Inc.'s board member and current Electronic Frontier Foundation president, joined the board of directors of The Commercial Internet Exchange Association, a cooperative association based in Falls Church, Va.

Michael J. Fitzpatrick is the new president of Minneapolis-based data communications systems manufacturer Network Systems Corp. Fitzpatrick, who formerly held an executive post at Shelton, Conn.-based Data Switch Corp., will also be a member of Network Systems' newly created office of the chief executive, along with Chairman and CEO Lyle D. Altman and Les Denend, president of Vitalink Communications, a recent Network Systems acquisition.

Acer America Corp., the San Jose, Calif.-based systems vendor, has named Lee Cannon as director of marketing and Steve Tsai as vice president of distribution sales for the U.S. and Canada.

Footloose and wire-free

CONTINUED FROM PAGE 87

The glue that will bind all of these systems will be the advanced intelligent network, which experts predict will be in place by 1998.

The network will be based on a patchwork of wire-line and wireless technologies, including microcellular systems that will operate over the short distances of an office complex or a few city blocks, macrocellular systems for medium distances and mobile satellite systems for nationwide and global communications.

Initially, the network will transmit voice and data, and within four or five years, it will be able to handle compressed, full-motion video, said F. Craig Farrill, vice president of technology and development at PacTel Corp.

Visionaries foresee that PCS business subscribers will field mobile work forces, collect inventory data in a supermarket outlet and upload data to a central database without ever stepping from an aisle. They could also issue insurance claims clicks within minutes after visiting the site of a calamity.

An automobile maker, for example, could introduce a new product and train salespeople at dealerships across the country using multimedia presentations.

There are several significant hurdles that must be cleared if PCS is to arrive by the mid-1990s, however.

The first and probably most pressing problem is finding the radio frequency spectrum needed for the wide variety of services that are on tap. The available spectrum is crowded, and finding the additional space is nearly impossible.

Service providers said they hope the Federal Communications Commission will reallocate some of the frequencies now being used by the military to commercial use. Many experts said they think that is likely.

Also looming large is the question of just who will be allocated spectrum space. When cellular licenses were handed out by a lottery, entrepreneurs and others who had no intention of actually launching services began reselling those licenses to the highest bidders. Now, some favor an auction that would allow the highest bidders to buy into the game.

Service providers are also counting on the development of digital communications technology that will enable them to make better use of the available space. However, that solution is not without obstacles.

There are at least three competing digital technologies now undergoing trials: Frequency Division Multiple Access, Time Division Multiple Access and Code Division Multiple Access. Not surprisingly, there are trade-offs among the competing standards in capacity, quality, cost and availability.

The FCC has given U.S. cellular carriers the authority to implement whatever digital technology best satisfies their needs and those of their customers.

"The FCC believes that the best way to choose a new digital standard is to let the marketplace decide what technology will become the U.S. cellular digital standard," said Kevin Kelley, vice president, external affairs at Qualcomm, Inc.



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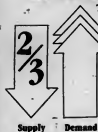
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Finding computer talent isn't as easy as it used to be. In fact, there was a time when you'd just run an ad in the local newspaper and you could make a hire without waiting too long or spending too much.

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The supply of qualified professionals isn't meeting demand



The American Council on Education reports that the number of college students choosing computer careers is down two-thirds since 1982. To make matters worse, there are more computers in today's business that require the skills of this shrinking market than ever before. And while you may never consider the company next door your competitor, it likely is competing for the same computer talent today. The result is a classic supply/demand problem that isn't changing for the better — and that's sure to make your recruiting tougher in the '90s.

Ads in local papers don't reach your major hiring market anymore

That's because they generally reach "active" job seekers — those who actively seek out the local newspaper to find jobs — and who a recent *Computerworld* job satisfaction survey found to represent 2 in 10 of today's computer professionals. The study also found that 7 in 10 of today's computer professionals are "passive" job seekers — those who



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would consider new job options, but likely never look for them in the local newspaper. (The remaining small percentage are "non-movers" content with long-term jobs.)

In short, this means that your ad in today's local newspaper reaches no more than 20 percent of today's computer job seekers. What's worse, if you're not using other vehicles that

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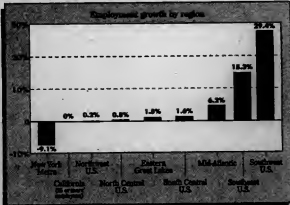
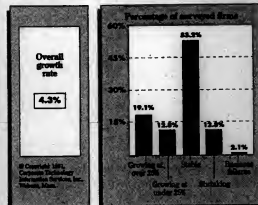
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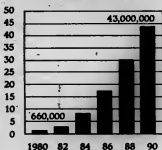
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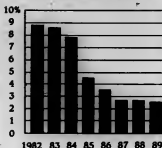
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MARKETPLACE

Fed up with new and improved

BY ALICE LAPLANTE
SPECIAL TO ENR

A recent upgrade to Unisys Corp.'s A Series operating system software sent shock waves through the information systems department at Suma Fruit International in Sanger, Calif. Because the upgrade reduced the maximum filename length to only 17 characters, it became necessary to do extensive programming modifications to make sure all the existing system and applications files complied — not an easy task, MIS manager Robert Houck says.

"When vendors issue these releases, they often don't realize the magnitude of the changes involved," Houck says. "Yet they are constantly issuing either major or intermediary releases that require a significant amount of testing and/or programming. It really isn't practical."

Expense vs. advantage
Most IS managers agree with Houck: The enormous trouble and expense of implementing a software upgrade can sometimes outweigh the actual benefits of the new, supposedly improved, version.

Although operating system upgrades tend to be the most difficult, installing new versions of applications — particularly those involving communications technology or a cross-platform client/server architecture — can be

costly and lead to troublesome incompatibilities in previously glitch-free computer systems.

As a result, many systems managers say they are mad and aren't going to take it anymore. They're showing this by delaying upgrades as long as possible or even skipping them altogether.

"Managers are absolutely fed up with the slew of upgrades that keep coming in the door," says Peter Delager, a Toronto-based IS consultant who has lectured extensively on how to successfully manage the horrors of software upgrades.

Is it worth the risk?

"We definitely don't do minor upgrades, and we look really hard at the major ones," says Tim Tarts,

director of MIS at Fleetguard, Inc. in Nashville. "An upgrade has to provide significant functionality to be worth the effort."

Despite this widespread objection from customers, it's not uncommon for vendors of mainframe, midrange and personal computer software to issue several upgrades of a particular package within a 12-month period.

In addition to major releases that mark a significant change in features and/or functionality, which can often be worth the time and expense of the upgrade process, IS managers say, many vendors also issue numerous "interim" releases

that simply fix minor bugs or glitches found in the previous version.

"In many ways, it's a terrible statement about our industry," Delager says. "Vendors are so anxious to get Version X.0 out the door that they ship it before it's ready, and they have to ship Version X.1 almost immediately. Because of this, upgrades tend to travel in pairs."

With the rapid pace of technological change and vendors racing each other to pack more features into products, Delager says, the rate of release of upgrades has accelerated. Whether the upgrade represents a major technological jump ahead or only a minor bug fix often doesn't matter. "It still represents an incredible amount of

work," Delager says.

Much of the upgrade decision is based on cost considerations, IS managers say.

Upgrades are expensive, period. But along with the cost of the upgrade itself, there are a number of concealed or indirect expenses that might not be obvious at first glance: people-hours that are needed to test the new software for bugs; lost productivity caused by installation procedures; programming expenses if code modifications need to be made; additional memory or hardware requirements; and the retraining of end users on the new features, to name just a few.

Hidden costs

"So many upgrade costs are hidden, and it's difficult to get an exact accounting of all the expenses involved," says Donald Whittington, MIS manager at the Michigan Sugar Co. in Saginaw, Mich.

Upgrades raise other issues as well. The most troublesome are potential incompatibilities with existing programs and data.

"To upgrade one product often means that four or five other supporting products need to be tested and perhaps changed as well," Delager says.

In today's complex corporate computing environment, it's rare that one piece of software doesn't need to connect or hook into others, and changing one piece of this puzzle can affect all the other pieces — perhaps adversely. Thus, many IS managers are loathe to make changes unless absolutely necessary.

LaPlante is a free-lance writer based in Palo Alto, Calif.

Why it pays to bite the bullet

While upgrades are a nuisance, IS professionals do cite several reasons to stay on top of them.

The No. 1 reason is that a new version of the software may offer some genuinely useful new features or fix a bug or two causing significant problems.

"The bottom line is pretty simple: Does the functionality match your known or upcoming requirements?" says Roger Best, director of MIS for the Industrial Gas Division at Air Products and Chemicals, Inc. in Allentown, Pa.

The second reason to upgrade is support: Some vendors will stop providing support and maintenance to customers who fall too far behind the most current version of their software.

"IBM asks you what release you have each time you place a service call," says James Holley, IS manager at Eaton Corp. in Cleveland, Tenn. "If you don't have the current version, they tell you to call back when you do."

Becoming more upgrades are technically dependent on the previous version already being installed, it isn't always practical to ship one, even if it seems superfluous. If a useful upgrade is announced later down the road, the time and expense of installing three, four or even five layers of upgrades all at once can be formidable.

"Just because one particular release doesn't attract you, there's still the possibility that a subsequent upgrade will, and you end up doing all the releases anyway," Holley says.

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AT Model 099	\$500	\$525	\$475
AT Model 239	\$550	\$575	\$500
AT Model 339	\$750	\$1,000	\$700
PS/2 Model 30 286	\$900	\$1,050	\$850
PS/2 Model 60	\$900	\$1,500	\$900
PS/2 Model 80	\$2,250	\$2,600	\$2,150
PS/2 Model 90	\$4,300	\$4,600	\$4,100
Compaq Portable II	\$750	\$1,000	\$700
Portable 286	\$1,100	\$1,300	\$1,000
Portable 386	\$1,800	\$2,000	\$1,600
ELX 286	\$1,600	\$1,800	\$1,400
LTX 286	\$1,450	\$1,500	\$1,350
Desktop 286	\$800	\$1,000	\$700
Desktop 386/30	\$2,000	\$2,300	\$1,900
Apple Macintosh Plus	\$750	\$975	\$700
SE	\$950	\$1,050	\$950
IX	\$3,500	\$3,600	\$3,400
DCI	\$3,700	\$4,200	\$3,600
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NEW COVERAGE

INITIAL RATING OF BUY: Cadence Design Systems, Inc. (Prudential Securities, Inc. Merger with Valid Logic Systems, Inc. should broaden Cadence's presence in the systems arena, which now makes up about 10% of Cadence's sales. In the near term, the firm will face restructuring charges as a result of the merger, but the strategy looks right. Stock could reach \$25 or more in nine to 12 months.

INITIAL RATING OF BUY: Micro Focus Group PLC (Alex. Brown & Sons, Inc.). This UK-based company is one of the leading suppliers of personal computer productivity tools for Cobol programmers. As the shift to PC-based programming gains momentum, so will Micro Focus. In addition to selling its products to corporate and government users, Micro Focus also sells to systems makers, including Hewlett-Packard Co., Microsoft Corp. and IBM. Shares trade on the London Stock Exchange and are available through American Depositary Receipts on the over-the-counter market.

RECOMMENDATION CHANGES

UPGRADED FROM HOLD TO BUY: LSI Logic Corp. (Presidential). Recent quarters were lower than last year but in line with expectations. The semiconductor industry as a whole should pick up, tailing LSI's orders along for the ride. Management has worked to reduce the company's average product cycle. The typical turnaround time from date of order is now four to six weeks, which is exceptional for an application-specific integrated circuit manufacturer. The 12-month target price for the stock is \$12.

UPGRADED FROM HOLD TO BUY: *Compaq Computer Corp.* (Bear, Stearns & Co.). The company is finally taking steps to address the new reality of the PC business and its competitive disadvantages. The restructuring of the product line divisions and the 12% head-count reduction was a good move. Outgoing founder and Chief Executive Officer Rod Canion was another step toward addressing the industry shift away from company founders to a new wave of managers. New file servers and notebooks, along with new marketing channels such as systems integrators, should enable Compaq to show renewed sales and earnings momentum.

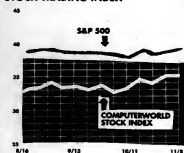
DOWNGRADED FROM STRONG BUY TO NEUTRAL: **Intergraph Corp.** (Alex. Brown). Fiscal third-quarter earnings were disappointing. Weak business in Europe outweighed above-plan results in the U.S. A new workstation, based on the Clipper processor and scheduled to ship by March 1992, may have caused buying deferrals. Intergraph will benefit from its decision to port its software to Sun Microsystems, Inc. Scalable Processor Architecture workstations next year, but for now, sales are not likely to grow.

ANALYSIS IN BRIEF

Large-systems software: Business trends in North America are now better for midrange- and mainframe software companies than in the past two years. Because many large-systems software companies make about 80% or more of their total revenue from this area, the trend is very positive. Specific beneficiaries include Legent Corp., Computer Associates International, Inc. and Goal Systems International, Inc.

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STOCK TRADING INDEX



THIS WEEK'S HIGHLIGHTS

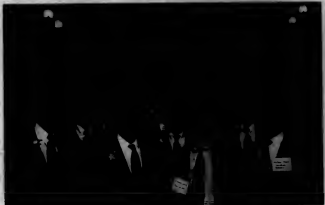
- The day chairman John Akers expressed high hopes for IBM's fiscal fourth quarter, IBM shares shot up 3 1/4 points. For the week, IBM advanced 14 1/2 points to close Thursday at 99 1/4. Digital Equipment Corp. dropped 4 1/2 points to 58 1/4, after Chairman Kenneth Olsen spoke at a shareholder meeting.
- Other big gainers included Cincro Systems, Inc., which advanced 3 1/2 points to 52 1/4 after closing out a profitable quarter.
- Autodesk, Inc. sunk 4 1/4 points last week to 38 1/4 after analysts cut earnings estimates for the company.
- Other losers included personal computer makers Dell Computer Corp. and AST Research, Inc. Dell slipped 1 1/2 of a point to 24, while rival AST dipped 1 1/2 to 20 1/4. Compag Computer Corp. lost 1 1/2 points to 27 1/4 after announcing a new line of PCs.
- Bayland International, Inc. continued to glide upward, picking up 1 1/4 points to 65 1/4.

Computerworld Friday Stock Ticker

CLOSING PRICES FRIDAY, NOVEMBER 8, 1991

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CW Premier 100 winners honored



More than 40 representatives of Computerworld's Premier 100 companies were among the 120 people who attended the annual awards dinner at the New York Yacht Club last Monday. Representatives of the top-ranking companies each received an award; all companies listed in the issue received plaques at the event. Harvard Law School Professor Arthur Miller delivered a keynote address on "Technology and Privacy in Corporations" (see this week's editorial, page 24). Other speakers included IDG Corp. Chairman Patrick McGovern, Computerworld Publisher Gary Beach and Computerworld Editor in Chief Bill Lohrke.

Software, services group seeks broader charter

BY JEAN S. BOZMAN
CW STAFF

SAN FRANCISCO — Adapso celebrated its 30th birthday here last week by trying to redefine both itself and its membership.

The software and services industry association gave itself a new name, the Information Technology Association of America (ITAA), and also sought to expand its membership rolls beyond the current

580 companies.

New members are being courted in the microcomputer software field. The group is also seeking to broaden its charter by adding systems integrators, value-added resellers and independent software vendors.

"My goal is to have 1,000 member firms three years from now," ITAA President Luanna James said.

The organization recently

lost some of its membership to

the desktop-oriented Software Publishers Association and has failed to attract some large companies marketing Unix software.

Topics of discussion during last week's ITAA meeting were deliberately varied, focusing on desktop technologies and Unix-based open systems rather than old-line mainframe topics.

"There used to be two camps — enterprise computing and desktop computing — and they more or less marched in parallel," said John Landry, executive vice president and chief technology officer at Dun & Bradstreet Software in Framingham, Mass. "Now, enterprise client/server technology has joined these technologies at the hip."

AT&T outage points up redundancy needs

BY ELIZABETH HORTWITT
CW STAFF

BOSTON — Seven weeks after New York customers lost service for several hours, AT&T suffered yet another major network outage — this time, in New England.

The failure, AT&T's fourth in two years, lasted from about 8 p.m. to 10:30 p.m. last Tuesday, knocking out about 60% of calls in the greater Boston area and affecting parts of New Hampshire, Connecticut and Rhode Island, AT&T said.

Like its predecessor, this failure resulted from human error, according to Bob Neressian, an AT&T spokesman. Technicians made mistakes while doing routine maintenance on the two Digital Access and Cross-Con-

nect Systems (DMCS) that handle routing for the greater Boston area, he added.

The two recent failures are pushing a growing trend among corporations to build redundancy and diversity into their telecommunications networks, said Berge Ayyar, a vice president at Boston-based research firm The Yankee Group.

This latest failure "just reinforces a strategy we've had for years now," of backing up critical voice and data circuits with redundant lines from different carriers, said Tom Courtney, Bank of Boston's director of telecommunications engineering. The bank lost several T1 lines during the outage

but was able to switch its critical voice and data requirements to the backup lines, he added.

AT&T is having more than its share of failures because it is making a difficult transition to automated systems that "provide self-healing networks and reduce personnel requirements," Ayyar said.

Bank of Boston does not plan to discard AT&T as a primary carrier, Courtney said. Human mistakes are just as likely to happen to MCI and Sprint.

AT&T is still investigating the incident and was unable to say why maintenance work was being done on both DMCSs simultaneously.



NEWS SHORTS

No deal in IBM, Comshare suit

Despite early reports to the contrary, IBM and Comshare, Inc. have not settled their recently ongoing summary judgment suit. A stipulation filed jointly in federal court in Chicago last week merely describes general allegations. Under the stipulation, Comshare agreed not to suppress an "IBM-manufactured" any summary judgment that was not entirely made by IBM and to label modified summary as such. It does not dispense with a hearing on the merits of IBM's charges that Comshare trafficked in counterfeit summary. IBM said. Neither does it restrict Comshare's defense, Comshare said.

Doelling exits Unix consortium

Unix System Laboratories, Inc. (USL) last week named Bud Papper as its new president and chief executive officer. He succeeds Larry Doelling, who is retiring from the Summit, N.J.-based USL. A native of the Mechanicsville, Papper joined USL in 1990 to serve in various technical and marketing assignments before becoming senior vice president and chief technical officer. Doelling, who will stay on as vice chairman for a time, has led USL since its 1989 launch.

A CD-ROM for Christmas

NEC Technologies, Inc. in Wood Dale, Ill., last week introduced a compact disc-only memory drive bundled with some interactive CD-ROM software titles. The CD Gallery, available for both Apple Computer, Inc. Macintosh and IBM Personal Computer and compatible platforms, comes with several titles. The CD Gallery for the Macintosh with a portable CD-ROM reader costs \$699; pricing for the PC version ranges from \$749 to \$829, depending on configuration.

ALR joins price-cut parade

Advanced Logic Research, Inc. (ALR) kicked a few more throats by slashing prices on its BusinessVision line of Extended Industry Standard Architecture (EISA)-based PCs. The cuts were exemplified by the company's 486/33 Model 101, which plummeted \$2,000, from \$3,995 to \$1,995. "We hoped, if you're going to do it, you might as well get aggressive," said David Kirby, ALR's vice president of marketing. Prices dropped between \$900 and \$2,000.

Wang grabs DAT from Archive

Wang Laboratories, Inc. picked a digital audio tape (DAT) drive from Archive Corp. for Wang's VS line and its first EISA-compatible personal computer, the EC 480/33C. The Archive Pytron Digital Data Storage (DAT) drive is priced at \$4,995 and is available immediately to Wang users in 3 1/2-in. and 5 1/4-in. versions. The drive can provide up to 2G bytes of storage, with backup and restore speeds of 1.835 kb/sec.

Counting boxes in Cupertino

Apple Computer, Inc. Chairman John Sculley has long described the introduction of the Macintosh Classic as the firm's most successful rollout ever, but last week, Sculley quantified those numbers. He told Wall Street analysts that Apple has shipped 780,000 Classics since the entry-level machine was introduced in October 1990. Such numbers exceed individual peak year sales of both the Macintosh Plus and SE by 100,000 units, he added.

Mips to roll out open tools

Mips Computer Systems, Inc. plans to announce this week the first availability of its in-house development tools for other platforms. The RISCcross software tools, which generate code that runs under the Mips R3000 reduced instruction set computing chip, will be available soon on Sun Microsystems, Inc. Sparc workstations and Digital Equipment Corp. VAX/VMS systems. Similar tools for the R4000 chip will be offered later, and PCs will be included as target platforms as well. A complete set of the RISCcross tools starts at \$40,000, with separate components priced from \$9,000 to \$20,000.

PC software promotional war escalates

CONTINUED FROM PAGE 1

As Lotus fine-tuned, Microsoft expanded its competitive upgrade plan to include PowerPoint and Project. Meanwhile, Borland came out with a promotional offering called "One, Two, Free," which will give users two free programs from a choice of three packages, including Sidekick 2.0, when they license either Quattro Pro or Paradox.

On the spreadsheet front, the three competitors are now essentially on the same footing. Put simply, a customer must show proof of a current spreadsheet license, plan to use the software as an upgrade and pay approximately \$129 for the new upgrade license.

"The problem comes in when you've got them all doing the same thing," said Bill Higgs, vice president of software research at Computer Intelligence/InfoCorp. "They are altering the perceived value of software in the minds of users."

Higgs said customers have long considered spreadsheets a \$495 product, and "suddenly, it's possible to get the product as a competitive upgrade for a great deal less." While they previously did not object to full price, they may now ask, "Is it worth that price anymore?"

Each company said the upgrade programs have been successful, although they did not provide numbers to support those claims. Analysts said it is difficult

to determine the business generated from competitive deals.

"But just look at what Borland's been able to do with Quattro Pro," said Frank Michioff, a program director at Meta Group, Inc. "It began the competitive upgrade thing, and Quattro Pro has been wildly successful." A possibly related fact, said software analysts who chart Lotus Development Corp.'s 1-3-3 market share, is that its share

"SUDDENLY, IT'S possible to get the product as a competitive upgrade for a great deal less."

BILL HIGGS
CINC/INFCORP

has been slipping, while competitors' shares are rising.

For example, the Computer Intelligence (CI) Personal Computer Market Monitor shows a dip in Lotus' 12-month average from 61% to 58%. In that same period, Borland moved up from 10% to 12%, while Microsoft was up from 15% to 19%. The CI numbers compare a 12-month period ending in September 1990 and 1991.

Developers see a competitive

upgrade program as targeting existing users only, and as such, they said it should not mushroom into demand for across-the-board lower prices.

According to analysts, however, they may have opened a

Pandora's box.

"I hope we have been clear about the intent of these programs," said Lewis Levin, director of marketing for applications at Microsoft. "This is an extension of upgrades that the industry

has been selling for some time. This is [about] the installed base."

Several users contacted last week said they welcome any price break. "They know upgrades are difficult, and anything they can do to make it more reasonable is welcome," said Patricia Telle, executive director of the Microcomputer Managers Association.

Lotus tones down pledge

Bowing to user complaints, Lotus Development Corp. modified its competitive upgrade policy last week and no longer requires users to dispose of their current spreadsheet product.

Lotus had included a pledge card with its 1-2-3 for Windows upgrade package that required users to promise to destroy their current spreadsheet within 90 days. Users may now keep their current product but are required to install the Lotus upgrade on the same system on which their current spreadsheet resides.

Competitors Borland International, Inc. and Microsoft Corp. were quick to point out that they do not make user sign pledges. Yet all three have similar requirements. In fact, Microsoft also asks that the upgrade be installed on the same system as the older spreadsheet. While Borland has no position on the installation, it also requests that users do not simply transfer the old spreadsheet to another user.

All three companies said they want customers to use the software as an upgrade. As such, it should replace the older spreadsheets.

According to a spokeswoman for Borland, "We act like they are acting in good faith, and we leave it at that."

Some users contacted last week said they

were not familiar with the Lotus policy but that tight restrictions on upgrade programs in general would be offensive.

"I'm here to treat your users," said Patricia Elste, a presentation analyst at Pacific Transmission Co. in San Francisco. "I prefer the Borland approach. I'd like to have someone count on my integrity."

Paul McNulty, director of product marketing at Lotus, said the company adjusted the 2-month-old upgrade policy after hearing from some users. He said a number of users with competitors' products found they could not easily transfer some files to the Lotus spreadsheet, so the requirement to dispose of the program caused problems.

McNulty also said that requiring users to install the upgrade on the current spreadsheet system is not a restriction. "If they want to transfer, they can," he said. "Our spreadsheet just has to go with it."

"If we didn't have some kind of rule, it would drive down our price points," he added. "The customer understands that if he is trying to get two users to use the two licenses, then it is clear that they should be paying for full product licenses. A new user pays full price."

ROSEMARY HAMILTON

Banking giant NCNB buys into outsourcing

CONTINUED FROM PAGE 1

After buying a host of smaller banks in Texas and the South during the past few years, NCNB announced in July that it will merge with C&S/Sovran Corp. to form the huge Nationalbank. That union is still pending, and the Perot Systems deal is exclusive to NCNB.

"We don't see too many banks like this outsourcing, most of them are basket cases," said Stephen McClellan, vice president of securities research at Merrill Lynch & Co. in Santa Monica, Calif. "It shows that outsourcing can be for everybody, not just weak, depressed companies."

Last week's deal continued NCNB's business philosophy of contracting out a variety of corporate functions, according to Eddie Rash, an Arlington, Texas-based systems consultant who has worked closely with the bank. NCNB has farmed out mailroom and supplies procurement functions, among others.

The outsourcing deal was not put out for bid but instead represented a new step in NCNB's existing relationship with Perot

Calling on outsiders

Five of the nation's 50 largest commercial banks have recently contracted or announced plans for outsourcing data.

Bank	1990 Fortune 500 rank	Outsourcing vendor
NCNB	7	Perot Systems
First Fidelity Bancorp	24	EDS
Continental Bank	26	IBM
Southeast Banking Corp.	44	IBM
First City Bancorp	45	EDS

OW Chart: David Gonzalez

Systems. NCNB's acquisition binge had left it owning data centers in Dallas, Houston, Charlotte, N.C., and Tampa, Fla.; Perot Systems worked with the bank to consolidate all four in Richardson, Texas.

"Perot Systems basically changed their philosophy of how their processing should work, duplicating the old environments in the new data center," Rash said.

NCNB is Perot Systems' largest systems operations customer to date but does not represent

its largest contract in the banking industry. Last spring, Perot Systems signed a 10-year, \$400 million deal to take over all the IS functions, including applications, of First American Bankshares, Inc. in Washington, D.C. (CW, April 8).

Perot Systems has no plans to dominate any NCNB computing platforms, said Ross Reeves, director of financial services at Perot Systems.

"We are doing that for other customers, but we will run this one as it is," he said.

Transferred loyalties

Approximately 2,500 General Dynamics Corp. IS employees instantaneously became Computer Sciences Corp. (CSC) employees last week after the largest outsourcing deal ever became official.

The two firms inked the 10-year pact, worth an estimated \$3 billion, in September (CW, Sept. 30). CSC paid General Dynamics \$200 million for three large data centers and 28 other IS service sites.

Only about 100 of the 2,600 General Dynamics Data Systems Division employees tabbed for transfer to CSC chose to leave the company instead.

CSC formed a new division, the Technology Management Division, to handle all of General Dynamics' IS needs as well as any new commercial outsourcing customers it can land. CSC is currently bidding for additional deals in the \$100 million to \$200 million range.

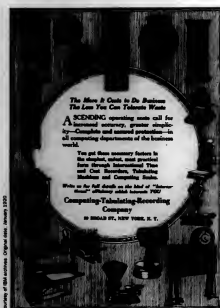
"Clearly, we've got to get aggressive with marketing immediately," said Van Haseyent, president of the CSC Industry Services Group, which includes the new division. "But we have to support General Dynamics as well—they are two very different missions."

Tom Williams, who formerly worked at CSC's federal systems business, was named president of the new division. Kenneth Wang, General Dynamics' No. 2 IS executive, was named a division vice president, as were the heads of the three General Dynamics data centers purchased by CSC: Paul Coloni in Norwich, Conn.; Don Hackley in Fort Worth, Texas; and Michael Beebe in San Diego.

Top IS executive Ansel Hall, who headed the Data Systems Division, will remain at General Dynamics as a corporate officer with additional responsibilities outside of IS.

CLINTON WILDER

WYSIWYG



When IBM was formed in 1911, its original name was Computing-Tabulating-Recording Co., or CTR. It was changed to IBM in 1924 by Tom Watson Sr. Above is an ad for CTR.

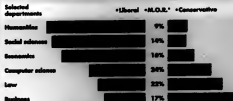
HACKERSPEAK

Backer slang and jargon
bit twiddling n. An exercise in optimizing a system in which incredible amounts of time and effort go to produce little noticeable improvement, with the frequent result that the code has become incomprehensible.
raster burn n. Eyestrain brought on by too many hours of looking at low-resolution, poorly tuned or glare-ridden monitors. See terminal illness.

"The meek shall inherit the world, but they'll never increase market share."
William G. McGowan, chairman, MCI Communications Corp.

Politics of the professoriate

The computer science faculty at U.S. colleges and universities leans slightly to the left on the political spectrum



Base: 5,208 faculty members at U.S. colleges and universities. Complete listing includes 28 departments. *M.O.R.* Middle of the road.

FIRST CLASS ALL THE WAY

From a Washington Post help-wanted ad for computer specialists: "A bachelor's degree and ability to travel expensively are required."



Name that company
SAP America, Inc. and CAP Gemini America recently forged a consulting and support alliance. Imagine if they merged? They could name the new company SAP & CAP.

► Do you have anecdotes about your users, your boss or your job? Know any industry trivia? If so, please contact Lory Zolotia or Jodie Nazzari at (800) 343-6474. If we use your ideas, we'll send you a gift.

Sources: Washington Journalist Review (December 1991); The American Enterprise magazine (July/August 1992); Business Week by David Holt (July 1991); News, Inc. (October 1991); The New Yorker's Dictionary; The MIT Press. Special thanks to the Computing Museum, Boston.

INSIDE LINES

Preparing for the worst

► Lines were buzzing last week with reports that Microsoft has drawn up a worst-case contingency plan to split the company along its Application Division and Operating System Division lines if the Federal Trade Commission's 2-year-old antitrust investigation rules against the company. There's "not a grain of truth" in the talk, a Microsoft spokesman said. But others insist that it makes perfect sense and say Microsoft has a similar war plan in case it loses the copyright infringement lawsuit Apple has brought against Microsoft's Windows graphical interface.

Who ya gonna call?

► AT&T is certainly having its network routing problems. As if last week's Digital Access and Cross-Connect Systems outage wasn't enough, the carrier's corporate offices are apparently plagued by private branch exchange routing problems that hinder incoming calls at the wrong extension. A call meant for an AT&T FR person went to a wrong number that is now erroneously receiving calls from between 15 and 20 AT&T phone stations, said the employee who picked up the extension. Actually, the situation is improving, she said; at one point, 50 extensions were going to that number.

Puling for an ACE

► In hopes of speeding time-to-market advantages for PC vendors in the Advanced Computing Environment (ACE) alliance, Mips Computer Systems is set to unveil next week its Reference ARC System Program. The program will offer standard and custom design kits, chip sets, software binaries, source code and technical support to companies using the Mips R4000 microprocessor to build systems complying with the Advanced RISC Computer specification from the ACE initiative. The kits will be available in the first quarter of 1992 to ACE members, priced by royalty fees on certain unit volumes.

No word yet from Bic, though

► More players are heading for the pen-based computer market, including Sharp Electronics and Epson America. Sharp's plans are still under wraps, but behind closed doors at Comdex/Fall '91, Epson showed a 3.6-pound tablet, subnotebook-size computer with 4M bytes of RAM and a 25-MHz 386SL inside, a 1.6-in. hard drive and two flash memory devices. Epson sources caution that this is just a prototype, and the final version might differ.

Past, anyone want a late PC word processor?

► The fate of Wang's delayed PC-based word processor became even more uncertain last week. A company spokesman confirmed that Upword 2.0 has

been relegated to a group called Wang Ventures, "where technologies go when management decides we need a partner in order to make it a success." Wang has neither the R&D resources nor the PC distribution channels it needs to keep Upword 2.0 competitive with other word processing packages, she said.

Better early if already late

► Well, it's certainly not accurate to call it early, but how about... "Not as late as we thought it was going to be?" Wordperfect shipped Wordperfect for Windows two days shy of Nov. 11 deadline. Never mind that Nov. 11 was about three quarters later than expected. The Wordperfect demo team also made the rounds last week, complete with their 9-month-old son.

A computer installed in a bank in Valparaiso, Chile, killed two workers after being infected by a demon spawned by a virus, according to the Nov. 12 issue of the Weekly World News, a supermarket tabloid. After a hideous horned demon appeared unexpectedly on-screen, one worker suffered a heart attack and another was decapitated. Anyone who came within 10 feet of the computer either blacked out or began babbling like a deranged person, the tabloid reported. An exorcist was summoned to rid the computer of the demon. Our News Editor, Alan Alper, could also use some divine inspiration. Call him at (800) 343-6474, fax him at (508) 875-8501 or Computerize him at 76537.2413.

Almost two out of every three Americans who work, work in an office.

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